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AUTHOR Andrews, Frances K.
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ABSTRACT

The self-instruction office machines course provides both student's and teacher's manuals and includes, in the teacher's edition, scripts to be used with 21 instructional sound films for the machines covered. These may be used without the films as detailed operating instructions. The teacher's manual also contains instructions on operating each machine and pretests and posttests for specific machines. The student text includes a sample pretest, a section of problems and instructions, along with answers, and sample posttests. Machines covered are semiautomatic Monroe rotary calculator, fully automatic Monroe rotary calculator, fully automatic Friden rotary calculator, fully authomatic Marchant rotary calculator, Underwood-Olivetti 10-key calculator, Victor 10-key calculator, Victor full keyboard adding-listing, Victor 10-key adding-listing, Burroughs 10-key adding-listing, and Olivetti electronic calculator. (MDW)

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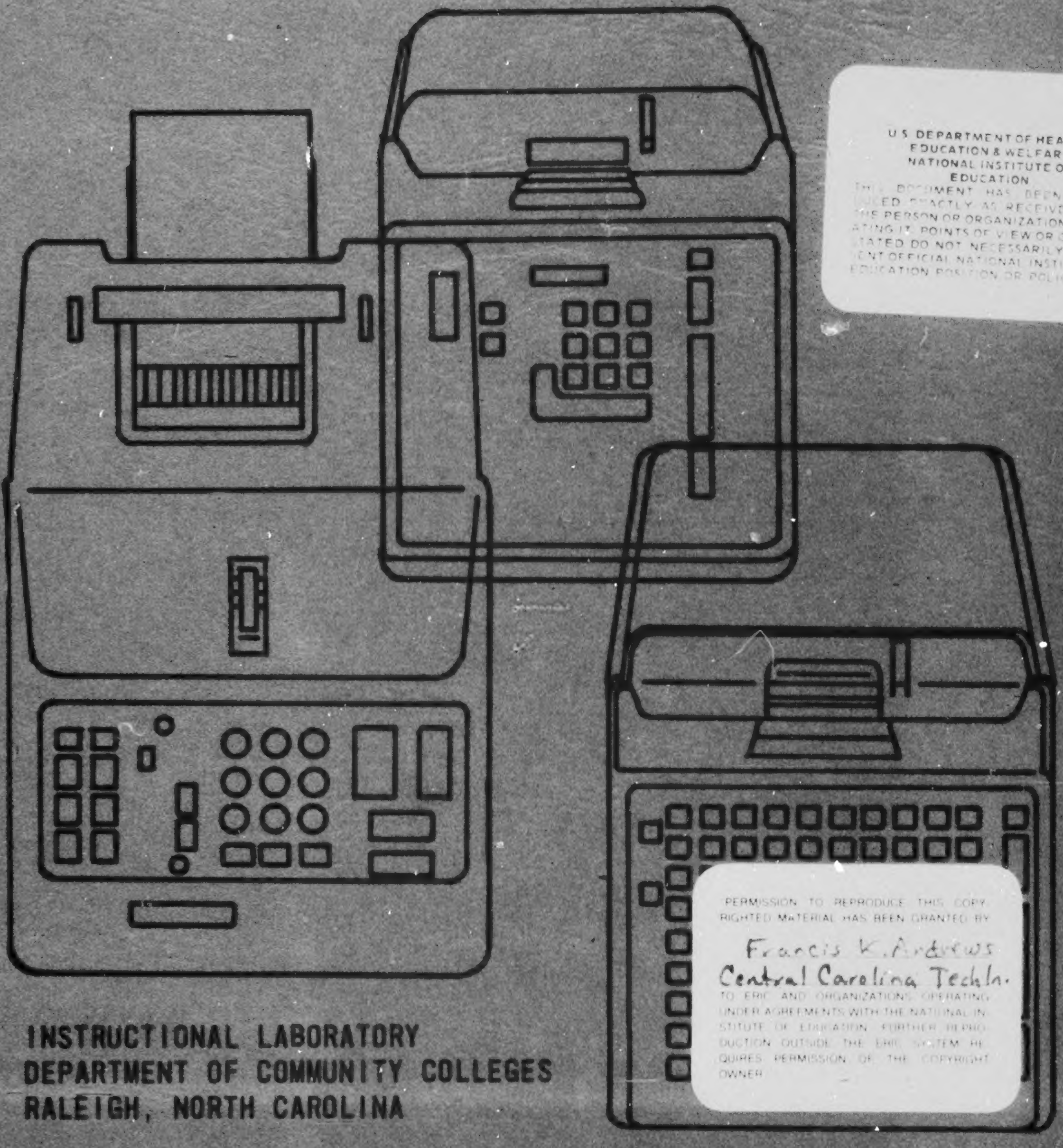
TBUS 110
(PROGRAMMED) STUDENT EDITION

# OFFICE MACHINES



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# BUSINESS MACHINES

## A Self-Instructional Course

by

Frances K. Andrews
Instructor
Central Carolina Technical Institute
Sanford, North Carolina

This programmed office machines text, instructor's manual, and 8mm (with sound) instructional films has been prepared for use in Office Machines (BUS 110). While the material has been copyrighted, permission has been given to the Department of Community Colleges for distribution to North Carolina technical institutes and community colleges.

This programmed office machines course covers the following machines:

*Semi-automatic Monroe rotary calculator
*Fully-automatic Monroe rotary calculator
*Fully-automatic Friden rotary calculator
*Fully-automatic Marchant rotary calculator
*Underwood-Olivetti ten-key calculator
*Victor ten-key calculator
*Victor full keyboard adding-listing
*Victor ten-key adding-listing
*Burroughs ten-key adding-listing
*Olivetti electronic calculator

Films: Twenty-one 8mm instructional films (with sound) have been prepared for use with this text. While only the original copy of the films, currently in use at Central Carolina Technical Institute, are presently available, CCTI will cooperate with other institutions in acquiring copies of these films. Schools interested in using these films are invited to visit CCTI to review the films for possible use in their course. While the films are not required to support the course, they are considered a valuable method of presentation.

Text: Each student text contains a sample pretest for the student who has had prior training on a specific machine, a section of problems and instructions are provided along with the answers at the end of each section, and a sample posttest for practice before taking the final test on that machine.

Instructor's manual: This manual contains instructions on the operation of each machine. It also provides from one to three pretests and posttests with answers to indicate if a student needs further work on a specific machine.

Scripts: Scripts give detailed instructions on the operation of each machine and can be used in addition to the instructional films. If the films are not used in this course, copies of these instructions can be distributed to students for their study.

T-BUS 110
(Programmed)

STUDENT EDITION

# SELF-INSTRUCTIONAL COURSE
# IN
# BUSINESS MACHINES

August 1972

by
Frances K. Andrews
Instructor
Central Carolina Technical Institute

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## INTRODUCTION

In a recent survey, it was found that 98 per cent of all office workers have machines available for calculations.

The student who develops a skill with machine computations will be greatly assisted regardless of his career objectives.

While a business machine operator is expected to perform routine computations at rapid rates of speed, a manager, an assistant, or a secretary will use business machines selectively as the need arises. For him the machine is a tool to help him compile data needed to define problems, analyze problems, report solutions.

The goals of this course are to give you a marketable skill, to give you experience on typical and actual business problems, and to give you the knowledge to apply business equipment to math-related studies.

Our first step in this office machines course will be to increase our vocabulary of numerical terms. Please take the pretest on the next page.

# PRETEST

In the space provided, write one word that identifies the number beside the blank.

For example:
4
+ 4
8 ___sum___

8 ______________ A
- 4 ______________ B
4 ______________ C

5 ______________ D
x 5 ______________ E
25 ______________ F

3 x 4 = 12

______________ G x ______________ H = ______________ I

6 ______________ K
J ______________ 4 / 25 ______________ L
24
1 ______________ M

25 ÷ 5 = 5

______________ N ÷ ______________ O = ______________ P

4 ______________ Q
+ 4 ______________ R
8 ___sum___

Check your answers on the next page.

## ANSWERS TO PRETEST

A. Minuend

B. Subtrahend

C. Remainder (sometimes called difference)

D. Multiplicand

E. Multiplier

F. Product

G. Multiplier

H. Multiplicand

I. Product

J. Divisor

K. Quotient

L. Dividend

M. Remainder

N. Dividend

O. Divisor

P. Quotient

Q. Augend

R. Addend

Did you identify all the numerical terms? If you did, GREAT! Ask me for post test No. 1.

If you did not identify all the numerical terms, continue with this unit on the next page.

Objectives: Given four problems in division, addition, subtraction, and multiplication, the learner will locate and label the following terms:

1. Dividend
2. Divisor
3. Quotient
4. Remainder
5. Multiplicand
6. Multiplier
7. Product
8. Sum
9. Minuend
10. Subtrahend
11. Augend
12. Addend

As you proceed through this unit on office machines, you will read and hear many numerical terms in the instructional material. It is essential to your learning progress that you have a thorough knowledge of these numerical terms. For example, if you have a problem 45 x 8 and you are directed to depress the multiplicand on the keyboard, you must know which of the two numbers is the multiplicand.

Multiplicand:

The amount that is to be multiplied.

4 x (3)

Multiplier:

The amount by which another number is multiplied.

(4) x 3

Product:

The result of multiplying one amount by another.

5 x 4 = (20)

Based upon what you have just learned, please complete the following exercises by identifying and labeling.

______________ 4 x 5 ______________ = 20 ______________

The answers should be: Multiplier, multiplicand, and product.

______________ 20 x 10 ______________ = ______________

The answers should be: Multiplier, multiplicand, and product.

Remember, the answer is the product.

4 ______________G

x 6 ______________H

24 ______________I

The answers should be: Multiplicand, multiplier, and product.

Dividend:

The amount to be divided by another amount.

$4\,/\,\overline{(14)}$

Divisor:

The amount to be divided into another amount.

$(4)\,/\,\overline{14}$

Quotient:

The result (or the answer) obtained when the dividend is divided by the divisor.

$$\begin{array}{r} \underline{(3)} \\ 4\,/\,14 \\ 12 \end{array}$$

Remainder:

The amount remaining when the divisor does not go into the dividend an even number of times; the remainder is also the answer when one number is subtracted from another number.

$$\begin{array}{r} \underline{3} \\ 4\,/\,14 \\ \underline{12} \\ (2) \end{array}$$

After you have studied the definitions, please complete the following exercises:

5 _______________ B
A _______________ 4 / 20 _______________ C

The answers should be: Divisor, quotient, and dividend.

_______________ 15 ÷ 5 _______________ = 3 _______________

The answers should be: Dividend, divisor, and quotient.

6 _______________ H
G _______________ 4 / 25 _______________ I
24
1 _______________ J

The answers should be: Divisor, quotient, dividend, and remainder.

Sum:

The answer when one number is added to another number or to several other numbers.

Example: 4 + 4 = 8 ___sum___

```
 7
 8
 9
--
24 ___sum___
```

Minuend:

The larger amount in a subtraction problem.

Subtrahend:

The small amount in a subtraction problem.

```
Example:    25 Minuend
          - 10 Subtrahend
            15 Remainder
```

Remember, when one number is subtracted from another, the answer is also called the difference.

Augend:

The number to which another number is to be added.

Addend:

The number or numbers added to the augend.

```
Example:       4 Augend
               4 Addend
               5 Addend
               9 Addend
              22 Sum
```

## EXERCISE

Fill in blanks, naming numerical terms.

4

+ 4

8 ____________A

The answer is sum.

4 ____________B

4 ____________C

4 ____________D

12

The answers are: augend, addend, and addend.

4 + 4 = ____________E

The answer is sum.

7 ____________F

- 2 ____________G

5 ____________H

The answers are: minuend, subtrahend, and remainder.

14 - 2 = 12

____________I - ____________J = ____________K

The answers are: minuend, subtrahend, and remainder.

At this point, it would probably be helpful if you took the sample post test on the next page. If you feel that you have mastered the numerical terms, ask me for the post test. If not, please review the exercises before taking the post test.

## SAMPLE POST TEST

In the space provided, write one word that identifies the number beside the blank.

For example: $\begin{array}{r} 4 \\ \underline{+\ 4} \\ 8 \end{array}$ ____sum____

| | | |
|---|---|---|
| 8 __________A | 5 __________D | 4 __________G |
| - 4 __________B | x 5 __________E | + 4 __________H |
| 4 __________C | 25 __________F | 8 ____sum____ |

3 x 4 = 12

____________I x ____________J = ____________K

6 ____________P

0 ____________ 4 / 25 ____________Q

24

1 ____________R

25 ÷ 5 = 5

____________L ÷ ____________M = ____________N

## ANSWERS TO SAMPLE POST TEST

A. Minuend

B. Subtrahend

C. Remainder (sometimes called difference)

D. Multiplicand

E. Multiplier

F. Product

G. Augend

H. Addend

I. Multiplier

J. Multiplicand

K. Product

L. Dividend

M. Divisor

N. Quotient

O. Divisor

P. Quotient

Q. Dividend

R. Remainder

You need not hand in any answer sheets, as the correct answer will be given to you beneath each problem. I urge you to work the problem write the answer down, and then check your answer. It is a good idea to cover the key until you are ready to verify your answer. If the answer is correct, proceed to the next problem. If it is not, go over the problem again step by step to determine where you made an error. Possible errors will be pointed out to you as you go along.

Some answers should be rounded off to five decimal places, some answers should be carried to five places, some answers should be rounded to two places, etc. These instructions will be given for each kind of machine.

For example, if your answer is 45.4513789, rounded to five places, it would be 45.45138; 45.1345748 would be rounded off to 45.13457. If the sixth digit is a five or higher, the fifth digit will be increased to the next highest number. If the sixth digit is a four or lower, the fifth digit remains the same. Caution: any problem that involves several steps should not be rounded off until the final operation.

Let's see if you understand how to round off decimal places by working the next few problems.

| | | | Answer (Cover the Key) |
|---|---|---|---|
| 1. | 147.489832 | ________________ | 147.48983 |
| 2. | 497.1983210 | ________________ | 497.19832 |
| 3. | 1978.3410976 | ________________ | 1978.34110 |
| 4. | 61.4785479 | ________________ | 61.47855 |
| 5. | $415.6594 | ________________ | $415.66 |
| 6. | $19.7666 | ________________ | $ 19.77 |
| 7. | $214.2145 | ________________ | $214.21 |
| 8. | $99.4125 | ________________ | $ 19.41 |

## GETTING READY FOR WORK

As you work with these four electric machines, always be sure that the cord is properly plugged into the outlet and into the machine.

At the end of the working session, the machine should be unplugged and recovered with the cord wrapped around the machine. This same practice should be continued when you start to work in an office so that the machine you are using will be protected.

The working papers, or workbook in this case, should be placed in front of you to the left of the machine; and the machine should be at a slight angle to your right.

## MOVING MACHINES

To avoid back injury and possible damage to the machine, please use the cart in the classroom to move the machines.

## CHANGING RIBBONS AND INSERTING NEW PAPER TAPE

Please read the directions in the manufacturers' manuals, which are in the classroom, when you need to change a ribbon or put new paper into the listing machines.

Most manufacturers provide these operating manuals without charge. When you begin a new job, you should ask your supervisor for the manual for your particular machine. Even office machines of the same make and model sometimes have different features.

## REPAIRS

Even the most careful machine operator will sometimes experience some mechanical difficulty. Please exercise caution when using one of the machines. Avoid depressing two operational keys at the same time, because this will cause the machine to lock.

If your machine becomes inoperative, we need to get it repaired right away. Please fill out a request for repair service form and give it to me. A sample request for repair service form is on the next page, and these forms will be found in the back of this workbook.

In order to help me evaluate this program, I need your help in two areas.

1. I need to know how much time you spend on any one machine so that an adjustment can be made if one is warranted, so please keep a record on the time sheets found on page 159 in the back of this workbook.
2. You will be asked to fill out an evaluation sheet at the end of each unit, so please make note of any difficulties you encounter.

REQUEST FOR REPAIR SERVICE

____________________________
Date

(Give a full description. If it is a semi-automatic Monroe rotary calculator, for example, write that in this space.

(Description of machine)

_________________________________

Equipment Number

(This can be found on a red sticker usually on the back or side of the machine.)

(Give any details that will help serviceman locate the difficulty.)

(Nature of problem)

____________________________________________________________________________

____________________________________________________________________________

____________________________________________________________________________

(Person reporting difficulty should sign here.)
Name

Now, about grades. An objective is written at the beginning of each section or unit telling you exactly what you should be able to do at the end of each unit. If your post test shows you have met the stated objectives, your grade on that particular unit will be "A". If you are unsuccessful and must take a second test, your grade for that particular unit will be "B". If you are unsuccessful a second time and must take a third test, your grade on that particular unit will be "C". Any subsequent tests will also warrant a grade of "C".

So you can see that it will be to your advantage to be reasonably sure that you are ready for the test. The only way you can get any grade other than an "A" is to take your post test too soon. Four grades will be given: "A", "B", "C", and Incomplete.

There will be five units to be tested, and these five units are the five machines on which you will become skilled:

1. Ten-key adding-listing machine
2. Full-key adding-listing machine
3. Ten-key calculator
4. Rotary calculator
5. Electronic calculator

At the beginning of each separate unit, that is, each machine, you should take the pretest to see if you need to complete the course of study on that particular machine.

Since the time element is very important in the operation of machines, you should work as quickly as possible.

Now, with all the preliminary information out of the way, you are ready to begin.

These four units may be done in any order, such order probably being determined by availability of machine.

Select the machine on which you wish to begin and turn to that section for further instructions. The page numbers for each unit are shown in the table of contents.

# TEN-KEY CALCULATOR

# TEN-KEY CALCULATOR

The ten-key calculator combines features of the rotary calculator and the ten-key adding machine. It multiplies and divides automatically and provides a printed tape.

The touch system provides for rapid entry of numbers into the printing calculator.

There are several makes of printing calculators on the market, and we have two of these in this class--the Victor and the Olivetti-Underwood. The skill you will acquire on either of these machines can be transferred to another make with no difficulty.

The objective is for you to work correctly 57 problems out of 60 in 45 minutes (95% accuracy). Additional 10 minutes are allowed on the Victor.

These problems will consist of:

1. Addition, subtraction, multiplication, and division of whole numbers and decimals.
2. Multi-factor multiplication.
3. Accumulated multiplication.
4. Multiplication of constants.
5. Computation of percentages of increases and decreases.

Perhaps some of you who have had office experience or have studied office machines in high school already know how to operate a printing calculator. At this point, you should take the pretest on the next three pages to see if you need further instruction and practice on the ten-key calculator.

# PRETEST FOR TEN-KEY CALCULATOR

Time yourself for 45 minutes, (55 if you are using a Victor). Work quickly. Work each problem one time. If you finish in less than 45 (or 55) minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Carry percentages out to two decimal places.
3. Round all products off to five decimal places.
4. Carry all division problems out to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers; for example, Cr., %.

# PRETEST FOR TEN-KEY CALCULATOR

1.
4.78
4.321
64.89
7.04
3.215

2.
.2576
- 4.55
17.895
.255
-24.5

3.
4.785
.25
ST

4.
8.557
19.25

5.
425.75
- 300.89

6.
725.72
- 981.45

7.
1,924.20
- 1,245.19

8.
2,476.10
- 3,248.70

9.
455.15
455.15
455.15
29.85
29.85
29.85

10.
1,228.76
1,228.76
1,228.76
704.20
704.20
1,228.76

11. 195 x 49 = ____________________

12. 45 x 78 = ____________________

13. 13 x 85 = ____________________

14. 127 x 95 = ____________________

15. 49 x 27 = ____________________

16. 17.5 x 4.85 = ________________

17. 35 x 29.5 = __________________

18. 1.75 x 18.55 = _______________

19. 2.78 x 21.4 = ________________

20. 17.55 x 3.4 = ________________

21. 15 x 21 x 89 x 44 = ___________

22. 28 x 64 x 144 = ______________

23. 114 x 21 x 87 = ______________

24. 25 x 19 x 21 x 6 = ___________

25. 128 x 45 x 17 = ______________

26. 16 x 29
37 x 45
75 x 94

27. 7.75 x 9.4
24.98 x .55
3.5 x 9.6

28. 1.75 x 7.85
.45 x 9.9
1.95 x 27.5

29. 175 lbs. @ $1.95 = ____________

30. 80 lbs. @ $1.95 = ____________

31. 122 lbs. @ $1.95 = ____________

32. 79 lbs. @ $1.95 = ____________

33. 117 lbs. @ $1.95 = ____________

34. 402 doz. @ $ .75 = ____________

35. 127 doz. @ $ .75 = ____________

36. 19 doz. @ $ .75 = ____________

37. 322 doz. @ $ .75 = ____________

38. 105 doz. @ $ .75 = ____________

39. 1,522 ÷ 75 = ________________

40. 725 ÷ 99 = ________________

41. 1,428 ÷ 17 = ________________

42. 6,483 ÷ 178 = ______________

43. 17,402 ÷ 508 = ______________

44. 105.245 ÷ 75 = ______________

45. 92.75 ÷ 2.5 = ______________

46. 12.15 ÷ .65 = ______________

47. 45 ÷ 495.25 = ______________

48. 14 ÷ 40.55 = ______________

## SALES COMPARISON

| Month | Last Year | This Year | Amount of Increase or Decrease | Percentage + or - |
|---|---|---|---|---|
| January | $12,500 | $14,275 | | 49 |
| February | 9,750 | 11,206 | | 50 |
| March | 13,475 | 12,222 | | 51 |
| April | 15,780 | 15,900 | | 52 |
| May | 20,470 | 18.924 | | 53 |
| June | 14,320 | 19,208 | | 54 |
| July | 15,425 | 18,905 | | 55 |
| August | 17,425 | 15,429 | | 56 |
| September | 21,740 | 19,207 | | 57 |
| October | 30,204 | 27,408 | | 58 |
| November | 24,701 | 29,324 | | 59 |
| December | 48,609 | 39,425 | | 60 |

## ANSWERS TO PRETEST FOR TEN-KEY CALCULATOR

1. 84.246
2. 10.6424 Cr.
3 5.035
4. 32.842
5. 124.86
6. 255.73 Cr.
7. 679.01
8. 772.60 Cr.
9. 1,4550.00
10. 6,323.44
11. 9,555
12. 3,510
13. 1,105
14. 12,065
15. 1,323
16. 84.875
17. 1,032.5
18. 32.4625
19. 59,492
20 59.67
21. 1,233,540
22. 258,048
23. 208,278
24. 59,850
25. 97,920
26. 9,179

27. 120.1890
28. 71.8175
29. $341.25
30. $156.00
31. $237.90
32. $154.05
33. $228.15
34. $301.50
35. $95.25
36. $14.25
37. $241.50
38. $78.75

39. 20.29333
40. 7.32323
41. 84
42. 36.42134
43. 34.2559
44. 1.40326
45. 37.1
46. 18.6923
47. .09086
48. .34525

| | Amount of Increase or Decrease | Percentage + or − |
|---|---|---|
| 49. | +$1,775 | +14.2% |
| 50. | +$1,456 | +14.93% |
| 51. | -$1,253 | - 9.29% |
| 52. | +$120 | + .76% |
| 53. | -$1,546 | - 7.55% |
| 54. | +$4,888 | +34.13% |
| 55. | +$3,480 | +22.56% |
| 56. | -$1,996 | -11.45% |
| 57. | -$2,533 | -11.65% |
| 58. | -$2,796 | - 9.25% |
| 59. | +$4,623 | +18.71% |
| 60. | -$9,184 | +18.89% |

If the pretest indicates that the stated objective has been met, ask me for the post test.

If the pretest indicates that further study and practice would be helpful, select one of the ten-key calculators in your classroom and have it in front of you as you view Film No. 6 and listen to Tape No. 6 if the machine you select is an Olivetti-Underwood, or Film No. 7 and Tape No. 7 if the machine you select is a Victor.

# PROBLEMS FOR TEN-KEY CALCULATOR

Number all Addition Problems

Addition

1. 4.56
7.89
1.23
1.47
2.58
3.69

2. 7.89
.45
3.45
.78
.89
2.45

3. 4.21
5.78
2.17
4.03
2.41
17.25

REMEMBER TO USE TOUCH SYSTEM AS
DEMONSTRATED IN INSTRUCTIONAL TAPE

4. 7.00
30.00
19.01
27.00
9.00
24.00

5. 27.01
300.00
21.00
17.95
32.55
19.25

6. 40.01
100.07
19.99
47.25
30.00
1.00

7. 7.50 + 5.02 + 3.25 + 4.95 =

8. 21.95 + 15.70 + 4.15 + 3.24 =

9. 12.95 + 14.05 + 10.90 + 3.75 =

10. 4.25
.17
1.5
3.0507
3.19
45.5

11. 4.19
.2545
3.215
12.97
3.214
.95

12. 1.00
17.95
3.214
.1275
250.75
1.55

13. 1.75
13.955
2.041
.95
1.10
.24

BE SURE TO KEEP
DECIMALS ALIGNED

14. 2.44
.17
3.75
1.974
21.75
.25

15. .25
7.80
9.125
.759
4.012
.98

16. .97
14.21
9.75
4.378
24.95
1.75

17. 10.95
14.80
.25
7.5
14.745
.35

18. 2.19
22.155
.28
.4355
19.21
1.985

Answers

1. 21.42
2. 15.91
3. 35.85
4. 116.01
5. 417.76
6. 238.32
7. 20.72
8. 45.04
9. 41.65
10. 57.6607
11. 24.7935
12. 274.5915
13. 20.036
14. 30.334
15. 22.926
16. 56.008
17. 48.595
18. 46.2555

If you have already worked on the ten-key adding-listing machine, you may skip this page as it is designed to facilitate mastery of the touch system.

Addition

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. | 22 | 2. | 47 | 3. | 63 | 4. | 12 |
| | 44 | | 58 | | 78 | | 23 |
| | 33 | | 69 | | 89 | | 44 |
| | 11 | | 41 | | 45 | | 45 |
| | 55 | | 52 | | 56 | | 47 |
| 5. | 112 | 6. | 455 | 7. | 123 | 8. | 987 |
| | 233 | | 456 | | 456 | | 147 |
| | 444 | | 654 | | 789 | | 258 |
| | 778 | | 546 | | 321 | | 369 |
| | 789 | | 787 | | 654 | | 741 |
| 9. | 852 | 10. | 147 | 11. | 456 | 12. | 123 |
| | 963 | | 789 | | 789 | | 897 |
| | 789 | | 456 | | 321 | | 321 |
| | 456 | | 321 | | 987 | | 789 |
| | 123 | | 741 | | 654 | | 456 |
| 13. | 582 | 14. | 789 | 15. | 258 | 16. | 456 |
| | 471 | | 987 | | 123 | | 654 |
| | 639 | | 147 | | 456 | | 564 |
| | 123 | | 741 | | 789 | | 546 |
| | 321 | | 852 | | 987 | | 664 |

Answers

| | |
|---|---|
| 1. | 165 |
| 2. | 267 |
| 3. | 331 |
| 4. | 171 |
| 5. | 2,356 |
| 6. | 2,898 |
| 7. | 2,343 |
| 8. | 2,502 |
| 9. | 3,183 |
| 10. | 2,454 |
| 11. | 3,207 |
| 12. | 2,586 |
| 13. | 2,136 |
| 14. | 3,516 |
| 15. | 2,613 |
| 16. | 2,884 |

## Subtraction

1. 21.50
- 9.75

2. 17.95
- 8.79

3. 4.21
- 3.17

YOUR CALCULATOR WILL INDICATE A CREDIT BALANCE WITH A "C" BESIDE OF THE TOTAL

4. 19.21
- 45.98

5. 198.50
- 250.98

6. 201.87
- 424.20

7. 325.98
- 495.42

8. 475.91
- 629.89

9. 498.70
- 250.42

10. 4.97
15.81
- 25.40
- 19.89
3.25
10.91

11. 4.25
7.91
- 2.30
- 7.25
9.28
14.45

12. 21.50
18.95
401.30
- 225.49
14.20
- 195.31

13. 195.40
- 20.50
27.81

14. 4.87
- 2.21
4.90

15. - 24.98
- 3.20
7.42

## Answers

1. 11.75
2. 9.16
3. 1.04
4. 26.77 Cr.
5. 52.48 Cr.
6. 222.33 Cr.
7. 169.44 Cr.
8. 153.98 Cr.
9. 248.28
10. 10.35 Cr.
11. 26.34
12. 35.15
13. 202.71
14. 7.56
15. 20.76 Cr.

## Subtotals

| 16. | 17. | 18. |
|---|---|---|
| 521.50 | 51.95 | 27.98 |
| 401.90 | 417.30 | 14.75 |
| 851.65 | 14.89 | - 22.30 |
| S | S | S |
| 3.21 | 3.21 | 24.80 |
| 19.85 | 19.85 | - 10.99 |
| 327.95 | 29.75 | - 3.21 |
| T | T | T |

| 19. | 20. | 21. |
|---|---|---|
| 3.21 | 24.32 | 4.98 |
| 14.95 | 17.95 | 31.24 |
| 21.98 | 104.62 | - 7.44 |
| S | S | S |
| - 4.88 | - 2.40 | 40.21 |
| -26.42 | -13.20 | -58.77 |
| 1.77 | 4.01 | 3.42 |
| T | T | T |

## Repeated Numbers

| 22. | 23. | 24. |
|---|---|---|
| 44.95 | 421.95 | 395.77 |
| 44.95 | 421.95 | 395.77 |
| 44.95 | 421.95 | 395.77 |
| 17.78 | 789.18 | 395.77 |
| 17.78 | 789.18 | 30.88 |
| 17.78 | 789.18 | 30.88 |

| 25. | 26. | 27. |
|---|---|---|
| 175.98 | 27.55 | 79.50 |
| 175.98 | 25.45 | 79.50 |
| 407.86 | 25.45 | 78.55 |
| 407.86 | 25.45 | 78.55 |
| 407.86 | 89.70 | 78.55 |
| 407.86 | 89.70 | 79.50 |

| 28. | 29. | 30. |
|---|---|---|
| 2334.80 | 11.95 | 4.95 |
| 2334.80 | 11.95 | 13.87 |
| 2334.80 | 407.24 | 13.87 |
| 19.87 | 407.24 | 322.44 |
| 19.87 | 407.24 | 322.44 |
| 18.32 | 19.88 | 322.44 |

## Answers

| | | |
|---|---|---|
| 16. | 1,775.05 | S |
| | 2,126.06 | T |
| 17. | 484.14 | S |
| | 536.95 | T |
| 18. | 20.43 | S |
| | 31.03 | T |
| 19. | 40.14 | S |
| | 10.61 | T |
| 20. | 146.89 | S |
| | 135.30 | T |
| 21. | 28.78 | S |
| | 13.64 | T |
| 22. | 188.19 | |
| 23. | 3,633.39 | |
| 24. | 1,644.84 | |
| 25. | 1,983.40 | |
| 26. | 283.30 | |
| 27. | 474.15 | |
| 28. | 7,062.46 | |
| 29. | 1,265.50 | |
| 30. | 1,000.01 | |

## Multiplication

1. 407 x 325 =
2. 391 x 425 =
3. 417 x 89 =
4. 489 x 625 =
5. 495 x 18 =
6. 35 x 22 =
7. 149 x 386 =
8. 722 x 405 =
9. 117 x 325 =
10. 318 x 425 =

BE SURE TO PUNCTUATE ANSWERS

11. 175 x 302 =
12. 315 x 804 =
13. 375 x 615 =
14. 1718 x 205 =
15. 4021 x 895 =
16. 8099 x 725 =
17. 324 x 895 =
18. 705 x 358 =
19. 795 x 925 =
20. 894 x 305 =
21. 24 x 19 =
22. 718 x 405 =
23. 321 x 895 =
24. 416 x 298 =
25. 401 x 798 =
26. 300 x 600 =
27. 494 x 326 =

## Answers

1. 132,275
2. 166,175
3. 37,113
4. 305,625
5. 8,910
6. 770
7. 57,514
8. 292,410
9. 38,025
10. 135,150
11. 52,850
12. 253,260
13. 230,625
14. 352,190
15. 3,598,795
16. 5,871,775
17. 289,980
18. 252,390
19. 735,375
20. 272,670
21. 456
22. 290,790
23. 287,295
24. 123,968
25. 319,998
26. 180,000
27. 161,044

## Multiplication of Decimals

1. 7.5 x 3.4 =

2. 3.9 x 7.8 =

> REMEMBER, THE SUM OF THE DECIMALS IN THE MULTIPLIER AND THE MULTIPLICAND EQUALS THE NUMBER OF DECIMAL PLACES IN THE PRODUCT.

3. 4.5 x 8.05 =

4. 21.5 x 3.075 =

5. 4.91 x 3.87 =

6. 4.95 x 4.03 =

7. 72.4 x 3.94 =

8. 9.75 x 3.24 =

9. 3.15 x 8.04 =

10. 2.77 x 8.25 =

11. 4.5 x 7.4 =

12. 10.07 x 14 =

13. 2.75 x 16.5 =

14. .372 x 95 =

15. 17.5 x 19 =

16. 7.95 x 4.25 =

17. 13.7 x .99 =

18. 31.6 x 2.88 =

19. 2,932 x 4.5 =

20. 17.5 x 84 =

21. 3.05 x 25 =

## Answers

1. 25.5
2. 30.42
3. 36.225
4. 66.1125
5. 19.0017
6. 19.9485
7. 285.256
8. 31.59
9. 25.326
10. 22.8525
11. 33.3
12. 140.98
13. 45.375
14. 35.340
15. 332.5
16. 33.7875
17. 13.563
18. 91.008
19. 13,194
20. 1,470
21. 76.25

## Accumulated Multiplication

1. 16 x 24
18 x 19
45 x 57

2. 705 x 19
75 x 2
54 x 83

3. 40 x 15
17 x 95
305 x 82

4. 107 x 195
302 x 24
254 x 78

5. 25 x 89
17 x 42
21 x 199

6. 45 x 18
64 x 345
86 x 12

## Accumulative Multiplication with Decimals

REMEMBER TO WORK AROUND FIXED DECIMALS

7. 1.95 x 3.2
17.24 x 3.25
1.75 x 4.55

8. 3.24 x 8.09
7.9 x 3.78
18.7 x 4.52

9. 7.88 x 3.15
.40 x .16
2.04 x 1.5

10. .75 x 4.03
1.825 x 3.7
5.429 x 5.3

11. 3.60 x 40
19.5 x 11.8
9.5 x 30.15

12. 85 x 4
.45 x 4.05
17.25 x 5

13. 2.5 x 17.55
10.7 x 3.245
6.85x 7.12

14. 7.5 x 4.05
13.4 x 8.95
7.9 x 3.025

15. 45.15 x 89
1.04 x 1.37
74.5 x 25

## Answers

1. 3,291
2. 18,027
3. 27,225
4. 47,925
5. 7,118
6. 23,922
7. 70.2325
8. 140.5976
9. 27.9460
10. 38.5487
11. 660.525
12. 428.0725
13. 127.3685
14. 174.2025
15. 5,882.2748

| Multiplying Constants | Answers |
|---|---|
| 1. 475 x 125 = | 1. 59,375 |
| 2. 475 x 302 = | 2. 143,450 |
| 3. 475 x 790 = | 3. 375,250 |
| 4. 475 x 219 = | 4. 104,025 |
| 5. 475 x 22 = | 5. 10,450 |
| 6. 14 x 221 = | 6. 3,094 |
| 7. 175 x 221 = | 7. 38,675 |
| 8. 85 x 221 = | 8. 18,785 |
| 9. 75 x 221 = | 9. 16,575 |
| 10. 118 x 221 = | 10. 26,078 |
| 11. 27 yds at $1.50 per yd = | 11. $40.50 |
| 12. 15 yds at $1.50 per yd = | 12. $22.50 |
| 13. 85 yds at $1.50 per yd = | 13. $127.50 |
| 14. 97 yds at $1.50 per yd = | 14. $145.50 |
| 15. 22 yds at $1.50 per yd = | 15. $33.00 |
| 16. 95 lbs at $1.29 per lb = | 16. $122.55 |
| 17. 70 lbs at $1.29 per lb = | 17. $90.30 |
| 18. 25 lbs at $1.29 per lb = | 18. $32.25 |
| 19. 19 lbs at $1.29 per lb = | 19. $24.51 |
| 20. 40 lbs at $1.29 per lb = | 20. $51.60 |

| Multiplying Constants Continued | Answers |
|---|---|
| 21. 175 pr. at $7.95 pr. = | 21. $1,391.25 |
| 22. 400 pr. at $7.95 pr. = | 22. $3,180.00 |
| 23. 75 pr. at $7.95 pr. = | 23. $ 596.25 |
| 24. 304 pr. at $7.95 pr. = | 24. $2,416.80 |
| 25. 221 pr. at $7.95 pr. = | 25. $1,756.95 |
| 26. 25 hrs. at $2.25 an hr. = | 26. $ 56.25 |
| 27. 30 hrs. at $2.25 an hr. = | 27. $ 67.50 |
| 28. 19 hrs. at $2.25 an hr. = | 28. $ 42.75 |
| 29. 24 hrs. at $2.25 an hr. = | 29. $ 54.00 |
| 30. 35 hrs. at $2.25 an hr. = | 30. $ 78.75 |
| 31. 19 doz. at $.75 a doz. = | 31. $ 14.25 |
| 32. 244 doz. at $.75 a doz. = | 32. $ 183.00 |
| 33. 175 doz. at $.75 a doz. = | 33. $ 131.25 |
| 34. 306 doz. at $.75 a doz. = | 34. $ 229.50 |
| 35. 83 doz. at $.75 a doz. = | 35. $ 62.25 |
| 36. 35 ft. at $.17 per ft. = | 36. $ 5.95 |
| 37. 175 ft. at $.17 per ft. = | 37. $ 29.75 |
| 38. 204 ft. at $.17 per ft. = | 38. $ 34.68 |
| 39. 19 ft. at $.17 per ft. = | 39. $ 3.23 |
| 40. 495 ft. at $.17 per ft. = | 40. $ 84.15 |

| Multi-Factor Multiplication | Answers |
|---|---|
| 1. 4 x 10 x 8 x 14 = | 1. 4,480 |
| 2. 75 x 13 x 4 x 7 = | 2. 27,300 |
| 3. 70 x 8 x 3 = | 3. 1,680 |
| 4. 14 x 41 x 125 x 3 = | 4. 215,250 |
| 5. 23 x 31 x 27 x 83 = | 5. 1,597,833 |
| 6. 9 x 18 x 35 = | 6. 5,670 |
| 7. 14 x 6 x 802 = | 7. 67,368 |
| 8. 82 x 64 x 237 = | 8. 1,243,776 |
| 9. 314 x 313 x 7 = | 9. 687,974 |
| 10. 38 x 78 x 25 = | 10. 74,100 |
| 11. .17 x 2.01 x 1.25 = | 11. .42713 |
| 12. 1.5 x .75 x .24 = | 12. .27 |
| 13. 8.19 x 15. x 1.40 = | 13. 171.99 |
| 14. 1.50 x 2 x .7 = | 14. 2.1 |
| 15. .17 x 9 x 9.9 = | 15. 15.147 |
| 16. 2.25 x 4 x .89 = | 16. 8.01 |
| 17. 64.5 x 24 x 9.30 = | 17. 14,396.4 |
| 18. 8.96 x 45 x .50 = | 18. 201.6 |
| 19. 17.2 x 85 x 45.50 = | 19. 66,521 |
| 20. 2.35 x 49 x .25 = | 20. 28.7875 |

## Division

1. 1795 ÷ 25
2. 1400 ÷ 202

REMEMBER TO CARRY ALL DIVISION PROBLEMS TO FIVE DECIMAL PLACES

3. 245 ÷ 18
4. 1037 ÷ 802
5. 2375 ÷ 99
6. 725 ÷ 18
7. 4509 ÷ 74
8. 3457 ÷ 32
9. 6586 ÷ 42
10. 17,402 ÷ 705
11. 17,425 ÷ 3427
12. 2844 ÷ 32
13. 9243 ÷ 197
14. 6789 ÷ 3075
15. 17,501 ÷ 85
16. 7432 ÷ 19
17. 4789 ÷ 42
18. 73,318 ÷ 456

## Answers

1. 71.8
2. 6.93069
3. 13.61111
4. 1.29301
5. 23.98989
6. 40.27777
7. 60.93243
8. 108.03125
9. 156.80952
10. 24.68368
11. 5.08462
12. 88.875
13. 46.91878
14. 2.2078
15. 205.89411
16. 391.15789
17. 114.0238
18. 160.78508

## Division with Decimals

REMEMBER TO SUBTRACT THE NUMBER OF DECIMALS IN DIVISOR FROM NUMBER OF DECIMALS IN DIVIDEND TO ARRIVE AT NUMBER OF DECIMALS IN QUOTIENT

1. 7,451.75 ÷ 45.32 =

IN PROBLEM 1, 2 - 2 = 0, SO ADD FIVE ZEROS TO DIVIDEND TO CARRY TO FIVE DECIMAL PLACES

2. 713.25 ÷ 4.05 =
3. 475.21 ÷ 15 =
4. 4,731.29 ÷ 128.95 =
5. 718.95 ÷ 403.7 =
6. 3,407.5 ÷ 19.5 =
7. 1.478 ÷ 2.05 =
8. 4.75 ÷ 25 =
9. 974 ÷ .155 =
10. 321 ÷ 25.75 =
11. 9084 ÷ 75 =
12. 42.15 ÷ 8.25 =

## Answers

1. 164.42519
2. 176.11111
3. 31.68066
4. 36.69088
5. 1.7809
6. 174.74358
7. .72097
8. .19
9. 6283.87096
10. 12.46601
11. 121.12
12. 5.10909

IF THE DIVISOR IS LARGER THAN THE DIVIDEND, ADD AS MANY ZEROS TO THE DIVIDEND AS THERE ARE NUMBERS (WHOLE OR DECIMALS) IN THE DIVISOR

13. 47 ÷ 473.56 =

14. 19 ÷ 45,962 =

15. 203 ÷ 78,950 =

16. 15 ÷ 40.55 =

17. 95 ÷ 876.5 =

18. 21 ÷ 40.25 =

19. 25 ÷ 40.557 =

20. 305 ÷ 197.55 =

21. 18 ÷ 405 =

22. 197 ÷ 1,875 =

23. 15.55 ÷ 9,542 =

24. 17 ÷ 405 =

25. 35 ÷ 91 =

26. 74 ÷ 90,358 =

DID YOU REMEMBER TO ADD 7 ZEROS TO DIVIDEND IN NO. 13? THIS WAS NECESSARY TO CARRY QUOTIENT TO 5 DECIMAL PLACES

Answers

13. .09924
14. .00041
15. .00257
16. .36991
17. .10838
18. .52173
19. .61641
20. 1.54391
21. .04444
22. .10506
23. .00162
24. .04197
25. .38461
26. .00081

# PERCENTAGE OF INCREASE OR DECREASE

Percentages have to be carried out only two decimal places, so you will add four zeros to dividend.

| | | | | | Answers | |
|---|---|---|---|---|---|---|
| Expense Item | Last Year | This Year | Amount of Increase or Decrease | Per-centage + or - | Amount of Increase or Decrease | Per-centage + or - |
| Oil | $ 294 | $ 375 | | | $ + 81 | + 27.55% |
| Gas | 402 | 516 | | | +114 | + 28.36% |
| Rent | 2,075 | 1,600 | | | -475 | - 22.89% |
| Taxes | 324 | 427 | | | +103 | + 31.79% |
| Delivery | 198 | 134 | | | - 64 | - 32.32% |
| Telephone | 375 | 485 | | | +110 | + 29.33% |
| Entertainment | 890 | 1,300 | | | +410 | + 46.06% |
| Postage | 374 | 454 | | | + 80 | + 21.39% |
| Travel | 2,270 | 3,874 | | | +1,604 | + 70.66% |
| Insurance | 975 | 1,272 | | | +297 | + 30.46% |
| Salaries | 15,000 | 22,000 | | | +7,000 | + 46.66% |

THE PRIOR OR BASE YEAR IS ALWAYS THE DIVISOR

On the Olivetti Underwood, depress 375.0000 into keyboard and hit the plus bar; depress 294.0000 into the keyboard and hit the minus bar: depress 294 into keyboard and hit divide equal key.

Notice that you get the difference $ +81 and the percentage of increase 27.55% all in one step. The same thing is true of the Victor except that the master control must be moved to divide position after the subtraction operation is performed. Always subtract the smaller number from the larger number and divide by the prior year.

## SALES

| | | | | | Answers | |
|---|---|---|---|---|---|---|
| Month | Last Year | This Year | Amount of Increase or Decrease | Percentage + or - | Amount of Increase or Decrease | Percentage + or - |
| January | $10,920 | $13,420 | | | + 2,500 | + 22.89% |
| February | 17,420 | 15,437 | | | - 1,983 | - 11.38% |
| March | 13,277 | 12,409 | | | - 868 | - 6.53% |
| April | 19,740 | 16,421 | | | - 3,319 | - 16.81% |
| May | 21,417 | 22,721 | | | + 1,304 | + 6.08% |
| June | 20,318 | 16,375 | | | - 3,943 | - 19.40% |
| July | 19,111 | 22,470 | | | + 3,359 | + 17.57% |
| August | 18,125 | 19,217 | | | + 1,092 | + 6.02% |
| September | 17,401 | 20,807 | | | + 3,406 | + 19.57% |
| October | 14,407 | 18,901 | | | + 4,494 | + 31.19% |
| November | 19,304 | 24,321 | | | + 5,017 | + 25.98% |
| December | 25,792 | 33,417 | | | + 7,625 | + 29.56% |

It would probably be helpful if you took the sample post test on the next several pages. Time yourself. Follow the same directions that you were given in the pretest. If you feel that you have mastered the ten-key automatic calculator, ask me for the post test. If you feel you need more practice, please turn to the supplementary problems and work problems of the type that gave you difficulty on the sample post test. Ask me for the post test when you feel you can meet the objective stated at the beginning of this unit.

# SAMPLE POST TEST FOR TEN-KEY CALCULATOR

(1)
7.84
3.241
53.98
4.07
3.531

(2)
.5267
-3.66
15.988
.525
-13.3

(3)
4.875
.35
ST.

(4)
8.755
18.53
T

(5)
335.57
-205.98

(6)
750.73
-891.45

(7)
2,291.40
-2,145.91

(8)
3,428.07
-4,276.10

(9)
545.25
545.25
545.25
30.15
30.15
30.15

(10)
1,330.77
1,330.77
1,330.77
750.30
750.30
1,346.67

(11) 591 x 94 =

(12) 55 x 28 =

(13) 31 x 48 =

(14) 721 x 59 =

(15) 55 x 72 =

(16) 18.2 x 3.86 =

(17) 25 x 25.2 =

(18) 2.57 x 19.33 =

(19) 3.87 x 22.3 =

(20) 19.45 x 4.3 =

(21) 30 x 15 x 22 x 12 =

(22) 122 x 14 x 32 =

(24) 30 x 24 x 25 x 11 =

(25) 64 x 54 x 71 =

(26) 17 x 92
73 x 54
57 x 49

(27) 7.76 x 4.9
89.42 x .54
5.3 x 6.9

(28) 5.71 x 8.75
.54 x 9.7
9.51 x 75.2

(29) 136 lbs. at $1.95 =

(30) 40 lbs. at $1.95 =

(31) 61 lbs. at $1.95 =

(32) 87 lbs. at $1.95 =

(33) 58 lbs. at $1.95 =

(34) 201 doz. at $.75 =

(35) 63 doz. at $.75 =

(36) 16 doz. at $.75 =

(37) 433 doz. at $.75 =

(38) 10 doz. at $.75 =

(39) 2,512 ÷ 57 =

(40) 786 ÷ 74 =

(41) 3,689 ÷ 19 =

(42) 9,864 ÷ 158 =

(43) 11,903 ÷ 407 =

(44) 107.542 ÷ 57 =

(45) 29.75 ÷ 2.5 =

(46) 13.15 ÷ .55 =

(47) 55 ÷ 595.25 =

(48) 14 ÷ 30.55 =

## SALES COMPARISON

| Month | Last Year | This Year | Amount of Increase or Decrease | % + or - |
|---|---|---|---|---|
| January | $ 13,600 | 16,575 | | |
| February | 8,570 | 12,602 | | |
| March | 14,547 | 21,233 | | |
| April | 14,870 | 14,900 | | |
| May | 21,740 | 19,429 | | |
| June | 41,230 | 50,802 | | |
| July | 16,932 | 19,905 | | |
| August | 17,452 | 15,942 | | |
| September | 21,704 | 18,702 | | |
| October | 31,504 | 27,408 | | |
| November | 25,801 | 30,435 | | |
| December | 59.719 | 40,536 | | |

# ANSWERS FOR SAMPLE POST TEST FOR TEN-KEY CALCULATOR

(1) 72.662
(2) .0797
(3) 5.225 ST
(4) 32.51 T
(5) 129.59
(6) 140.72 Cr.
(7) 145.49
(8) 848.03 Cr.
(9) 1,726.20
(10) 6,839.58
(11) 55,554
(12) 1,540
(13) 1,488
(14) 42,539
(15) 3,960
(16) 70.252
(17) 630
(18) 49.6781
(19) 86.301
(20) 83.635
(21) 118,800
(22) 54,656
(23) 137,826
(24) 198,000
(25) 245,376
(26) 8,299

(27) 122.8808
(28) 770.3525
(29) $ 265.20
(30) $ 78.00
(31) $118.95
(32) $169.65
(33) $113.10
(34) $150.75
(35) $47.25
(36) $12.00
(37) $324.75

(38) $ 7.50
(39) 44.07017
(40) 10.62162
(41) 194.15789
(42) 62.43037
(43) 29.2457
(44) 1.8867
(45) 11.9
(46) 23.90909
(47) .09239
(48) .45826

| Increase or Decrease | % + or - |
|---|---|
| (49) + $ 2,975 | + 21.87% |
| (50) + $ 4,032 | + 47.04% |
| (51) + $ 6,686 | + 45.96% |
| (52) + $ 30 | + .2% |
| (53) - $ 2,311 | - 10.63% |
| (54) + $ 9,572 | + 23.21% |
| (55) + $ 2,973 | + 17.55% |
| (56) - $ 1,510 | - 8.65% |
| (57) - $ 3,002 | - 13.83% |
| (58) - $ 4,096 | - 13% |
| (59) + $ 4,634 | + 17.96% |
| (60) - $ 19,183 | - 32.12% |

# ROTARY CALCULATOR

The rotary calculator is very popular with office workers and professional workers who have complicated problems to solve. The machine will add, subtract, multiply, and divide. It is a very impressive piece of office equipment, and I believe you will enjoy working with it.

The objective is for you to work correctly 32 problems out of 34 in 35 minutes (94% accuracy).

These problems will consist of:

1. Addition, subtraction, multiplication, and division of whole numbers and decimals.
2. Accumulated multiplication.
3. Computation of interest.
4. Computation of percentages of increases and decreases.
5. Computation of net amounts involving chain discounts.
6. Addition of constants.

It has occurred to me that perhaps some of you who have office experience or who are veterans, etc., might already know how to operate a rotary calculator. At this point you should take the pretest on page 63 to see if you need further instruction and practice on the rotary calculator.

## PRETEST FOR ROTARY CALCULATOR

Time yourself for 35 minutes. Work quickly. Work each problem one time. If you finish in less than 35 minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Carry percentages out to two decimal places.
3. Round all products off to five decimal places.
4. Carry all division problems out to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers; for example, Cr., %.

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| 4.17 | 1.75 | 21.50 | 27.50 | 10.50 |
| 3.25 | 1.32 | 16.95 | 14.95 | 14.90 |
| 9.18 | 4.28 | 29.30 | 37.50 | .25 |
| 7.21 | 5.18 | 54.89 | 42.90 | 365.50 |
| 2.35 | 7.01 | 22.40 | 26.42 | 2,401.16 |
| 9.80 | 5.31 | 31.50 | 51.76 | 14.90 |
| 4.05 | 6.95 | 17.42 | 19.95 | 42.50 |
| 4.21 | 3.75 | 19.85 | 42.20 | 17.99 |
| 1.95 | 4.50 | 14.21 | 17.50 | 407.50 |
| 2.49 | 2.98 | 70.98 | 25.82 | 1,200.10 |

| 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|
| 10.50 | 77.42 | 275.32 | 401.50 | 743.42 |
| - 4.37 | -19.37 | -14.50 | -719.25 | -989.50 |

11. 1089 + 745 =

925 + 745 =

819 + 745 =

12. 145.6 x 42.99 =

13. 37.4 x 15 =

14. 98.7 x 48.5 =

15. 15 x 177 x 402 =

16. 19.4 x 3.07 x 15.5 =

17. 175.45 ÷ 27.5 =

18. 746.16 ÷ 14.01 =

19. 424.75 ÷ 49 =

20. Convert 127 feet to yards

21. Convert 1075 inches to feet

22. Accumulate:

15.95 x 47.523
4.01 x 1.24
93.4 x .15
609.24 x 3.25

Interest on:

23. $ 950.50 at 4 1/2% =

24. $2,450.75 at 5 3/4% =

25. $1,795.00 at 7% =

26. $2,462.75 at 7 1/4% =

Find the Percentage of Increase or Decrease

| | Previous | Current | Percentage + or - |
|---|---|---|---|
| 27. | 9,500 | 10,171 | |
| 28. | 14,970 | 17,402 | |
| 29. | 5,492 | 4,998 | |
| 30. | 10,764 | 11,500 | |
| 31. | 29,456 | 26,375 | |

Find the net Amount of the following:

32. $1,742.25 less 12%, 7%, 5%

33. $ 895.00 less 20%, 15%, 10%

34. $ 987.42 less 15%, 10%, 5%

CHECK YOUR ANSWERS ON PAGE 65.

## ANSWERS TO PRETEST FOR ROTARY CALCULATOR

1. 48.66
2. 43.03
3. 299.00
4. 306.50
5. 4,475.30
6. 6.13
7. 58.05
8. 260.82
9. 317.75 Cr.
10. 246.08 Cr.
11. 1,834
    1,670
    1,564
12. 6,259.344
13. 561
14. 4,786.95
15. 1,067,310
16. 923.149
17. 6.38
18. 53.2591
19. 8.66836
20. 42 yds., 1 ft.
21. 89 feet, 7 inches
22. 2,757.00425
23. 42.77
24. 140.92
25. 125.65
26. 178.55
27. + 7.06%
28. +16.24%
29. - 8.99%
30. + 6.83%
31. -10.45%
32. 1,354.56
33. 547.74
34. 717.61

If the pretest indicates that the stated objective has been met, ask me for the post test.

If the pretest indicates that further study and practice would be helpful, select one of the five rotary calculators in your classroom and have it in front of you as you view film no. 1 and listen to tape no. 1.

# PROBLEMS FOR ROTARY CALCULATOR

Cover the answer column.

After you work each problem, check your answer immediately in the column at the right. If your answer is correct, proceed to the next problem. If your answer is incorrect, work the problem again, or as many times as necessary to arrive at the correct answer.

Since we have four different kinds of rotary calculators in the classroom, different machine adjustments will be required for each machine.

As you know, there is a film and a tape explaining how to perform each operation on each machine; and you have already viewed the film and listened to the tape for the particular machine you are operating. If you are unable to work any problem as you go through this section, you should view the film and listen to the tape again.

Please understand that if you become skilled on one type of rotary calculator, you will have no difficulty switching to another type; but at this initial learning stage, there is enough difference to warrant individual instruction on each machine.

## Adding Whole Numbers

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| 22 | 55 | 21 | 88 | 97 |
| 12 | 43 | 22 | 89 | 46 |
| 23 | 44 | 76 | 98 | 75 |
| 33 | 45 | 77 | 99 | 54 |
| 34 | 34 | 78 | 87 | 57 |

| 6. | 7. | 8. |
|---|---|---|
| 86 | 19 | 21 |
| 25 | 23 | 17 |
| 56 | 111 | 71 |
| 101 | 46 | 160 |
| 176 | 28 | 379 |

USING PROPER FINGER TECHNIQUES AS DEMONSTRATED IN THE FILM WILL SPEED UP YOUR WORK

| 9. | 10. | 11. | 12. |
|---|---|---|---|
| 47 | 100 | 421 | 934 |
| 129 | 501 | 401 | 159 |
| 406 | 28 | 195 | 678 |
| 709 | 99 | 625 | 125 |
| 337 | 406 | 579 | 981 |
| 98 | 890 | 901 | 602 |
| 344 | 224 | 755 | 227 |
| 678 | 374 | 432 | 408 |
| 399 | 14 | 809 | 943 |
| 33 | 38 | 123 | 170 |

| 13. | 14. |
|---|---|
| 1,030 | 1,776 |
| 2,141 | 1,812 |
| 5,013 | 1,939 |
| 9,022 | 1,442 |
| 2,157 | 2,319 |
| 4,373 | 3,731 |
| 5,662 | 7,761 |
| 1,970 | 2,050 |
| 2,524 | 4,051 |
| 4,007 | 7,674 |

ARE YOU READING THE NUMBERS WITH A QUICK GLANCE AND AVOIDING THE TEMPTATION TO TAKE A SECOND LOOK

## Answers

1. 124
2. 221
3. 274
4. 461
5. 329
6. 444
7. 227
8. 648
9. 3,180
10. 2,674
11. 5,241
12. 5,227
13. 37,899
14. 34,555

## Adding Numbers with Decimals

15. 1.71
23.41
8.09
7.42
5.36

16. 24.75
19.24
54.12
10.90
9.98

17. 7.43
4.02
15.45
17.95
32.21

18. 376.401
.1052
3.0257
3.174
17.92

19. 401.257
40.12
7.4013
15.95
67.80

20. .9820
7.943
6.021
9.3
16.8317

> DID YOU REMEMBER TO ALIGN YOUR DECIMAL POINTS AND TO MARK THEM ON YOUR MACHINE BY USING DECIMAL MARKERS IN REGISTER DIAL AND KEYBOARD?

21. 1.743
9.01
16.23
39.407
401.523

22. 19.27
10.277
3.4
265.43
6.735

23. 7.401
97.433
2.778
3.89
675.41

### Answers

15. 45.99
16. 118.99
17. 77.06
18. 400.6259
19. 532.5283
20. 41.0777
21. 467.913
22. 305.112
23. 786.912

## Subtraction

1. 64
-32

2. 75
-24

3. 799
-326

4. 401
-299

5. 3,907
- 322

DEPRESSION OF WRONG KEY ON KEYBOARD CAN BE CORRECTED BY SIMPLY DEPRESSING CORRECT KEY.

6. 6,701
- 519

7. 3,478
-1,033

8. 4,711
-2,376

9. 374,029
-25,000

10. 4,100,462
-2,400,400

11. 51,763
-19,742

12. 17,299
- 322

AN ERROR DEPRESSED IN THE KEYBOARD CAN BE CORRECTED BY DEPRESSING THE KEYBOARD CLEAR KEY.

## Credit Balances

13. 701
-799

14. 4,623
-5,000

15. 5,921
-6,735

16. 8,932
-10,725

17. 7,466
-8,220

DO YOU REMEMBER HOW TO CONVERT A COMPLEMENT TO A CREDIT BALANCE

18. 21,325
-25,384

19. 44,648
-45,205

20. 17.21
-18.50

21. 29.45
-33.00

22. 429.50
-734.89

23. 275.50
-634.27

24. 1,201.50
-1,279.45

ARE YOU WRITING COMMAS, DECIMAL POINTS, CREDIT OR OTHER NECESSARY EXPLANATIONS IN YOUR ANSWERS?

## Answers

| | |
|---|---|
| 1. | 32 |
| 2. | 51 |
| 3. | 473 |
| 4. | 102 |
| 5. | 3,585 |
| 6. | 6,182 |
| 7. | 2,445 |
| 8. | 2,335 |
| 9. | 349,029 |
| 10. | 1,700,062 |
| 11. | 32,021 |
| 12. | 16,977 |
| 13. | 98 Cr. |
| 14. | 377 Cr. |
| 15. | 814 Cr. |
| 16. | 1,793 Cr. |
| 17. | 754 Cr. |
| 18. | 4,059 Cr. |
| 19. | 557 Cr. |
| 20. | 1.29 Cr. |
| 21. | 3.55 Cr. |
| 22. | 305.39 Cr. |
| 23. | 358.77 Cr. |
| 24. | 77.95 Cr. |

## Addition and Subtraction

| 25. | 26. | 27. |
|---|---|---|
| 17.95 | 21.75 | 40.50 |
| 23.04 | 49.21 | 19.29 |
| -17.80 | 16.19 | -57.22 |
| 21.25 | 204.27 | 1.55 |
| 5.99 | - 33.44 | - 1.25 |
| 8.75 | 17.30 | 74.99 |
| - 2.01 | - 17.30 | 21.67 |
| 6.22 | 78.94 | 4.21 |
| 4.19 | 17.95 | 1.95 |
| -20.70 | 2.01 | 13.72 |

## Answers

| | |
|---|---|
| 25. | 46.88 |
| 26. | 356.88 |
| 27. | 119.41 |

IF AN INCORRECT FIGURE HAS BEEN REGISTERED INTO THE DIAL, THE ERROR CAN BE CORRECTED BY SUBTRACTING THE SAME AMOUNT.

Constants in Addition

1. 450 + 395 =
925 + 395 =
475 + 395 =

2. 1,714 + 165 =
1,402 + 165 =
1,524 + 165 =

3. 14.65 + 7.64 =
29.95 + 7.64 =
17.82 + 7.64 =

DID YOU SET DECIMAL MARKERS?

4. 21.7694 + 12.755 =
14.9012 + 12.755 =
4.7301 + 12.755 =

5. 4.21 + 7.79 =
2.75 + 7.79 =
3.27 + 7.79 =

Answers

1. 845
1,320
870

2. 1,879
1,567
1,689

3. 22.29
37.59
25.46

4. 34.5244
27.6562
17.4851

5. 12.00
10.54
11.06

## Constants in Subtraction

| | Variable | | Constant | | Difference | | Answers |
|---|---|---|---|---|---|---|---|
| 6. | 7,947 | - | 3,500 | = | | 6. | 4,447 |
| | 6,491 | - | 3,500 | = | | | 2,991 |
| | 5,275 | - | 3,500 | = | | | 1,775 |
| 7. | 2,535 | - | 725 | = | | 7. | 1,810 |
| | 3,127 | - | 725 | = | | | 2,402 |
| | 2,708 | - | 725 | = | | | 1,983 |
| 8. | 795 | - | 215 | = | | 8. | 580 |
| | 314 | - | 215 | = | | | 99 |
| | 229 | - | 215 | = | | | 14 |
| 9. | 74.95 | - | 14.95 | = | | 9. | 60.00 |
| | 60.00 | - | 14.95 | = | | | 45.05 |
| | 99.75 | - | 14.95 | = | | | 84.80 |

DID YOU SET DECIMAL MARKERS?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10. | 13.4789 | - | 1.495 | = | | 10. | 11.9839 |
| | 12.3602 | - | 1.495 | = | | | 10.8652 |
| | 12.7891 | - | 1.495 | = | | | 11.2941 |

## Multiplication

| Whole Numbers | | | Answers |
|---|---|---|---|
| 1. | 45 x 6 = | 1. | 270 |
| 2. | 21 x 75 = | 2. | 1,575 |
| 3. | 22 x 49 = | 3. | 1,078 |
| 4. | 24 x 17 = | 4. | 408 |
| 5. | 42 x 5 = | 5. | 210 |
| 6. | 21 x 98 = | 6. | 2,058 |
| 7. | 87 x 94 = | 7. | 8,178 |
| 8. | 804 x 634 = | 8. | 509,736 |
| 9. | 209 x 29 = | 9. | 6,061 |
| 10. | 1,724 x 1,234 = | 10. | 2,127,416 |
| 11. | 4,309 x 24 = | 11. | 103,416 |
| 12. | 845 x 99 = | 12. | 83,655 |
| 13. | 7,432 x 2,647 = | 13. | 19,672,504 |
| 14. | 4,789 x 87 = | 14. | 416,643 |
| 15. | 137 x 22 = | 15. | 3,014 |

DID YOU WRITE A COMMA IN
YOUR ANSWER TO SEPARATE
THOUSANDS?

## Multiplying Decimals

In these next ten problems, place the decimal in product manually; that is, without working around fixed decimals.

| | | | Answers |
|---|---|---|---|
| 16. | 7.4 x 5.4 = | 16. | 39.96 |
| 17. | 3.5 x 4.7 = | 17. | 16.45 |
| 18. | 1.9 x 4.5 = | 18. | 8.55 |

DID YOU ADD THE NUMBER OF DECIMAL PLACES IN MULTIPLIER TO NUMBER OF DECIMAL PLACES IN MULTIPLICAND TO FIND OUT HOW MANY PLACES TO MARK OFF IN PRODUCT?

| | | | |
|---|---|---|---|
| 19. | 19.45 x 4.2 = | 19. | 81.690 |
| 20. | .37 x 4.007 = | 20. | 1.48259 |
| 21. | 4.1732 x 68.9 = | 21. | 287.53348 |
| 22. | 89.42 x 77.15 = | 22. | 6,898.7530 |
| 23. | .0042 x 6.6 = | 23. | .02772 |
| 24. | 7.89 x 2.2 = | 24. | 17.358 |
| 25. | 12.75 x 15.25 = | 25. | 194.4375 |

## Multiplying Around Fixed Decimals

Preset your decimal places to accommodate the largest number of decimal places in the multiplicand and the multiplier.

| | | | Answers |
|---|---|---|---|
| 1. | 15.45 x 17.15 = | 1. | 264.9675 |
| 2. | 125.4 x .132 = | 2. | 16.5528 |
| 3. | 7.89 x 4.5 = | 3. | 35.505 |
| 4. | 4.66 x 2.6975 = | 4. | 12.57035 |
| 5. | .375 x 4.7515 = | 5. | 1.78181 |
| 6. | 3.25 x .4576 = | 6. | 1.4872 |
| 7. | 12.5 x 5.684 = | 7. | 71.05 |
| 8. | 10.4428 x 75.675 = | 8. | 790.25889 |
| 9. | 75.5 x 12.5832 = | 9. | 950.0316 |
| 10. | .775 x .7125 = | 10. | .55218 |
| 11. | 95.6075 x 13.7 = | 11. | 1,309.82275 |
| 12. | 15.807 x 22.774 = | 12. | 359.98861 |
| 13. | 12.75 x 2.4304 = | 13. | 30.9876 |
| 14. | 179.455 x .225 = | 14. | 40.37738 |
| 15. | 14.95 x 75.25 = | 15. | 1,124.9875 |
| 16. | 95.432 x 15.6 = | 16. | 1,488.7392 |

ARE YOU DEPRESSING MULTIPLICAND
INTO KEYBOARD AROUND PRESET
DECIMALS?

## Multiplying Three Factors

| | | | Answers |
|---|---|---|---|
| 1. | 7 x 8 x 9 = | 1. | 504 |
| 2. | 13 x 17 x 21 = | 2. | 4,641 |
| 3. | 45 x 205 x 21 = | 3. | 193,725 |
| 4. | 15 x 17 x 19 = | 4. | 4,845 |
| 5. | 25 x 11 x 26 = | 5. | 7,150 |
| 6. | 13 x 14 x 245 = | 6. | 44,590 |

IN ALL THE FOLLOWING PROBLEMS, YOU MAY PLACE THE DECIMAL POINT MANUALLY, BUT IT WILL BE MUCH FASTER IF YOU DECIDE ON AN APPROPRIATE DECIMAL PROGRAM AND WORK AROUND FIXED DECIMALS.

| | | | |
|---|---|---|---|
| 7. | 4.5 x 2.5 x 799 = | 7. | 8,988.75 |
| 8. | 2.4 x 5.5 x 3.2 = | 8. | 42.24 |
| 9. | 3.5 x .435 x 10.99 = | 9. | 16.73227 |

IF KEYBOARD WILL NOT ACCOMMODATE THE WHOLE NUMBERS IN THE PRODUCT OF THE FIRST OPERATION, RESET DECIMALS OR POINT OFF DECIMALS MANUALLY. SOMETIMES IT MAY BE NECESSARY TO DROP DECIMALS FOR WHICH NO ROOM EXISTS ON KEYBOARD.

| | | | |
|---|---|---|---|
| 10. | 1.74 x 4.5 x 2.07 = | 10. | 16.2081 |
| 11. | 3.34 x 4.21 x 1.95 = | 11. | 27.41973 |
| 12. | 4.9 x .065 x 5.66 = | 12. | 1.80271 |

Accumulated Multiplication

1. 15.1 x 14.7
3.2 x 1.25
14.78 x 3.042
195.75 x 24.78

DO YOU REMEMBER FROM THE FILM
THE MACHINE ADJUSTMENTS FOR
ACCUMULATED MULTIPLICATION?
IF NOT, VIEW THE FILM AND
LISTEN TO THE TAPE AGAIN.

2. 75.9 x 40.23
1.486 x 74.693
132.74 x 2.431
4.31 x 4.3262

3. .9 x .74
3.3 x 4.98
10.21 x 7.31
7.65 x .45

4. 4.21 x 19.5
17.95 x 215.63
4.755 x 6.5
.4224 x .187

5. 33.1 x 32.125
9.5 x 6.476
342.75 x .75
2.34 x 7.008

6. 15.9 x 4.73
501.25 x 10.765
14.76 x .8
4.095 x .6

7. 124.2 x .76
4.97 x .332
21.35 x 1.442
125.3 x .75

8. .2 x .75
4.9 x 2.55
30.7 x .42
4.095 x .4552

9. 12.74 x 1.9
.34 x .25
37.5 x 2.5
1067.35 x .9

10. 1.5 x 3.45
.98 x .995
75.15 x 2.15
1063.5 x .25

11. 79.5 x 500.15
74.21 x .75
.45 x 1.25
2.61 x .45

Answers

1. 5,121.61576
2. 3,505.78765
3. 95.1776
4. 3,983.63999
5. 1,398.32072
6. 5,485.42825
7. 220.80374
8. 27.40304
9. 1,078.656
10. 433.5976
11. 39,819.3195

## Multiplying Fractions

Multiplying fractions is the same as multiplying any number containing a decimal once you have converted the fraction to a decimal equivalent.

Some of the more common decimal equivalents you probably know are:

1/4 = .25

3/4 = .75

1/2 = .50

A decimal equivalent can be computed by simply dividing the numerator of the fraction by the denominator. For example:

$$
\begin{array}{r}
.125 \\
1/8 \;=\; 8\overline{)\,1.000} \\
\underline{8}\phantom{00} \\
20\phantom{0} \\
\underline{16}\phantom{0} \\
40 \\
\underline{40}
\end{array}
$$

For your convenience, a table of decimal equivalents is provided in the appendix.

Round decimal equivalents off to five places.

## Multiplying Fractions

| | Answers |
|---|---|
| 1. 1/2 x 1 5/8 = | 1. .8125 |
| 2. 5/6 x 45 1/2 = | 2. 37.91652 |

If the capacity of your machine is not enough to take care of decimal places using fixed decimals, you may disregard decimal markers and place decimals manually.

| | Answers |
|---|---|
| 3. 4 1/3 x 7 2/3 = | 3. 33.22221 |
| 4. 10 1/2 x 4 3/4 = | 4. 49.875 |
| 5. 25 7/8 x 15 1/8 = | 5. 391.35938 |
| 6. 4 3/8 x 19 1/2 = | 6. 85.3125 |
| 7. 12 2/3 x 204 1/2 = | 7. 2,590.3334 |
| 8. 32 1/3 x 10 7/8 = | 8. 351.625 |
| 9. 99 x 1/3 = | 9. 32.99997 |
| 10. 14 1/4 x 5/6 = | 10. 11.875 |

ARE YOU ROUNDING OFF THE DECIMAL EQUIVALENTS TO FIVE DECIMAL PLACES AND ROUNDING OFF THE PRODUCT TO FIVE DECIMAL PLACES?

## Computing Percentages

In business, the computation of percentages is a very basic operation. It is essential in figuring interest and discounts.

Numerical relationships may be expressed in fractions, decimals, or percentages.

For example: 3/4 = .75 and .75 = 75%

We know that to convert 3/4 to .75, the denominator is divided into the numerator.

Now, to convert .75 to a percentage, simply move the decimal point two places to the right and add a percent sign (%) 75%.

Conversely, to convert a percentage to a decimal, move the decimal point two places to the left. 75% = .75. Percent means hundredths. 75% means seventy-five hundredths or 75/100; 5% means five hundredths or 5/100.

You can see that if you divide 100 into 75 and 100 into 5, you get the decimal equivalent--the same as you get the decimal equivalent of any fraction.

```
          .75              .05
    100/ 75.00       100/ 5.00
         70 00            5 00
          5 00
          5 00
```

Find the percentages of the following problems by multiplying the number by the rate percent and marking off the proper number of decimal points.

| | Answers |
|---|---|
| 1. 25% of $100 = | 1. $ 25.00 |

Multiply 100 by the decimal equivalent of 25% ($\frac{25}{100}$ = .25)

| | |
|---|---|
| 2. 30% of $595 = | 2. 178.50 |
| 3. 15% of $400 = | 3. 60.00 |

Note: It is always easier to work around fixed decimals if the capacity of the machine is adequate.

| | |
|---|---|
| 4. .5% of $100 = | 4. .50 |

Notice that .5% is five-tenths or 1/2 of 1%, and the decimal equivalent will be .005 (not .05), because you must move the decimal point two places to the left to convert percent to decimal equivalent.

|  | Answers |
|---|---|
| 5. 6 7/8% of $795.35 = | 5. $ 54.68 |
| 6. 9% of $85 = | 6. $ 7.65 |
| 7. 103% of $555 = | 7. $571.65 |
| 8. 24% of $19.95 = | 8. $ 4.79 |
| 9. 4.5% of $750 = | 9. $ 33.75 |
| 10. 2 1/2% of $432 = | 10. $ 10.80 |
| 11. 10 3/4% of $45.50 = | 11. $ 4.89 |
| 12. 125% of $150 = | 12. $187.50 |
| 13. 8% of $35 = | 13. $ 2.80 |
| 14. 5 1/2% of $150 = | 14. $ 8.25 |
| 15. 22% of $1500 = | 15. $330.00 |
| 16. 7 1/8% of $450 = | 16. $ 32.06 |
| 17. 33% of $250 = | 17. $ 82.50 |
| 18. .8% of $35 = | 18. $ .28 |
| 19. 33 1/3% of $250 = | 19. $ 83.33 |
| 20. 27% of $900 = | 20. $243.00 |

## Computing Net Amounts

NOTE: IF YOU ARE GOINGTO DEDUCT ONE PERCENTAGE, IT ISN'T NECESSARY TO LOCK REGISTER DIAL. SIMPLY CLEAR COUNTER DIAL AND CONTINUE WITH PROBLEM.

| | Answers |
|---|---|
| 1. $750.00 less 10% = | 1. $ 675.00 |
| 2. $525.50 less 25% = | 2. $ 394.13 |
| 3. $160.00 less 2 1/2% = | 3. $ 156.00 |
| 4. $2,500.00 less 12 1/2% = | 4. $2,187.50 |
| 5. $17.00 less 5 5/8% = | 5. $ 16.04 |
| 6. $97.50 less 4 1/4% = | 6. $ 93.36 |
| 7. $335.00 less 15% = | 7. $ 284.75 |
| 8. $270.00 less 33% = | 8. $ 180.90 |
| 9. $148.50 less 4% = | 9. $ 142.56 |
| 10. $370.00 less 15% = | 10. $ 314.50 |

Remember, if the capacity of machine is inadequate, disregard decimal markers and mark off decimals manually.

## Negative Multiplication

In the previous twenty problems, you figured the percentages. In problem No. 1, you found that 25% of $100 was $25. If you were computing interest at the rate of 25%, you have your answer; but suppose you were computing a discount. In that case you would have half of your answer--the discount would be $25. But what would the net amount be? You would have to subtract $25 from $100 to get the net amount.

If you are interested in getting the net amount and not the percentage, you should use negative multiplication. You will recall that negative multiplication was explained in the film and tape.

Please look at the film and listen to the tape again if necessary. Then use negative multiplication to find the net amounts in the next ten problems.

## Chain Discounts

Because of the fluctuation in costs, venders frequently quote a list price for items in their catalogs and adjust their prices by adjusting the discount to reflect the changes in prices brought about by the changes in costs. New discount sheets can be distributed without reprinting the entire catalog.

In the previous problems, you figured net amounts; that is, the amount left after deducting a specified discount.

Now, we are going to deduct chain discounts, which are a series of discounts. For example, $150 less 25%, 10%, and 5%. The first discount of 25% would be deducted from $150. The second discount of 10% would be deducted from the balance of $150 less 25%, and the third discount of 5% would be deducted from the balance of $150 less 25%, less 10%.

Please compute the net amounts in the next ten problems by using either the negative or the positive multiplication method.

Let's take the problem in the example:

$150 less 25%, less 10%, less 5% = $96.19

Negative Method - (Use a decimal program of 4-4-8.)

1. Multiply by 1; do not clear register dial.
2. Depress 150 on keyboard and multiply negatively by .25.
3. Depress the product of this multiplication, 112.50, on the keyboard and multiply negatively by .10.
4. Depress the product of the second multiplication, 101.25, on the keyboard and multiply negatively by .05.

REMEMBER, DO NOT ROUND OFF UNTIL FINAL OPERATION.

Positive Method - (Use a decimal program of 4-4-8.)

1. Multiply $150 by .75 (the decimal equivalent of the net percent after .25 has been deducted).
2. Depress the product of 112.50 on the keyboard, clear register and counter dials (not necessary on machines with "clear multiplier" feature) and multiply by .90 (the decimal equivalent of the net percent after .10 has been deducted).
3. Depress the product, 101.25 on the keyboard, clear register and counter dials (not necessary on machine with "clear multiplier" feature) and multiply by .95 (the decimal equivalent of the net percent after the .05 has been deducted).
4. Final product is 96.1875, rounded off to $96.19.

| | Answers |
|---|---|
| 1. $450 less 15%, 10%, 5% = | 1. $ 327.04 |
| 2. $67.50 less 12%, 7%, 3% = | 2. $ 53.58 |
| 3. $149.50 less 10%, 8%, 4% = | 3. $ 118.83 |
| 4. $490.55 less 20%, 15%, 10% = | 4. $ 300.22 |
| 5. $900 less 30%, 25%, 20% = | 5. $ 378.00 |
| 6. $795 less 5%, 5%, 5% = | 6. $ 681.61 |
| 7. $2,500 less 15%, 8 1/2%, 4% = | 7. $1,866.60 |
| 8. $3,750 less 15%, 10%, 5% = | 8. $2,725.31 |
| 9. $105 less 7 1/2%, 5%, 5% = | 9. $ 87.66 |
| 10. $99.55 less 10%, 10%, 10% = | 10. $ 72.57 |

## Division

Carry to five decimal places even if you have to place decimals manually.

| | Answers |
|---|---|
| 1. 150 ÷ 3 = | 1. 50 |
| 2. 225 ÷ 5 = | 2. 45 |
| 3. 175 ÷ 10 = | 3. 17.5 |

IF YOU ARE NOT WORKING AROUND FIXED DECIMALS, DID YOU REMEMBER TO ALIGN DIVIDEND WITH DIVISOR?

| | |
|---|---|
| 4. 145.10 ÷ 17 = | 4. 8.53529 |
| 5. 14.75 ÷ .25 = | 5. .59 |
| 6. 17.50 ÷ 2.5 = | 6. 7 |

DID YOU CARRY THE ANSWER OUT TO FIVE PLACES?

| | |
|---|---|
| 7. 2.744 ÷ .75 = | 7. 3.65866 |
| 8. 104 ÷ 1.075 = | 8. 96.74418 |
| 9. 149 ÷ 75 = | 9. 1.98666 |
| 10. .129 ÷ .26 = | 10. .49615 |
| 11. 1325 ÷ 14 = | 11. 94.64285 |
| 12. 422 ÷ .62 = | 12. 680.64516 |
| 13. 2,753 ÷ 2.75* = | 13. 1001.0909 |
| 14. 297.3021 ÷ 2.33 = | 14. 127.59746 |
| 15. 3.022 ÷ .5 = | 15. 6.044 |
| 16. 6.041 ÷ 7 = | 16. .863 |

*Beyond capacity of Monroe Semi-Automatic to carry more than 4 decimal places even when placing decimals manually.

| | |
|---|---|
| 17. 1,475 ÷ 45 = | 17. 32.77777 |
| 18. 666 ÷ 107 = | 18. 6.22429 |
| 19. 204.96 ÷ 42 = | 19. 4.88 |
| 20. 1,076 ÷ 14 = | 20. 76.85714 |

Expressing quotient as a whole number and a remainder.

| | Answers |
|---|---|
| 1. 14 ÷ 4 = | 1. 3 R2 |
| 2. 275 ÷ 9 = | 2. 30 R5 |
| 3. 1740 ÷ 17 = | 3. 102 R6 |

DID YOU MOVE CARRIAGE TO EXTREME LEFT?

| | |
|---|---|
| 4. 1,475 ÷ 66 = | 4. 22 R23 |
| 5 795 ÷ 45 = | 5. 17 R30 |
| 6. 1,375 ÷ 23 = | 6. 59 R18 |

Convert to Yards

| | |
|---|---|
| 7. 17 ft. = | 7. 5 yds. 2 ft. |
| 8. 95 ft. = | 8. 31 yds. 2 ft. |
| 9. 127 ft. = | 9. 42 yds. 1 ft. |

Convert to Feet

| | |
|---|---|
| 10. 45 in. = | 10. 3 ft. 9 in. |
| 11. 160 in. = | 11. 13 ft. 4 in. |
| 12. 1075 in. = | 12. 89 ft. 7 in. |

Convert to Pounds

| | |
|---|---|
| 13. 77 oz. = | 13. 4 lbs. 13 oz. |
| 14. 10795 oz. = | 14. 674 lbs. 11 oz. |
| 15. 375 oz. = | 15. 23 lbs. 7 oz. |

# TYPICAL BUSINESS PROBLEMS

In order to make decisions, businessmen need to compare changes in sales, expenses, etc. They want to know not only the amount of change but the percentage of change.

For example, if sales have increased by $2,000, an increase of 10%, a businessman would be interested in knowing also how much costs or expenses have increased, and the information would be more meaningful if expressed in percentages.

To find a percentage of increase, subtract the smaller amount from the larger amount, and divide difference by previous amount.

Example:

| Previous | Current | Increase or Decrease | Percentage + or - |
|---|---|---|---|
| $11,000 | $15,000 | $4,000 | 36.36% 4,000 ÷ 11,000 |

Set the decimal on the keyboard to accommodate the whole numbers; that is $15,000 and $11,000. Plus $15,000 into the machine with the add bar and subtract $11,000 with the subtract bar, leaving the difference of $4,000 in the register dial. Depress $11,000 into the keyboard and hit divide key. Decimals in the register dials will be marked off according to the individual machine as demonstrated in the instructional film.

## Amount and Percent of Increase or Decrease

| | Sales | | | | Answers | |
|---|---|---|---|---|---|---|
| | Previous | Current | Increase or Decrease | Percentage + or - | Increase or Decrease | Percentage + or - |
| 1. | $ 14,500 | $17,425 | | | 2,925+ | 20.17%+ |
| 2. | 23,475 | 29,402 | | | 5,927+ | 25.24%+ |
| 3. | 17,496 | 31,725 | | | 14,229+ | 81.32%+ |
| 4. | 21,798 | 24,302 | | | 2,504+ | 11.48%+ |
| 5. | 1,470,420 | 977,475 | | | 492,945- | 33.52% |
| 6. | 597,432 | 600,000 | | | 2,568+ | .42%+ |
| 7. | 12,419 | 7,422 | | | 4,997- | 40.23%- |
| 8. | 33,218 | 30,000 | | | 3,218- | 9.68%- |
| 9. | 27,495 | 28,722 | | | 1,227+ | 4.46%+ |
| 10. | 19,416 | 21,000 | | | 1,584+ | 8.15%+ |

## Comparison of Overhead

| | | | | Answers |
|---|---|---|---|---|
| | Previous | Current | Percentage of Increase or Decrease | Percentage of Increase or Decrease |
| Insurance | $ 700 | 900 | | + 28.57% |
| Utilities | 197 | 200 | | + 1.52% |
| Taxes | 4,719 | 5,028 | | + 6.54% |
| Salaries | 25,718 | $ 30,603 | | + 18.99% |
| Rent | 1,700 | 1,500 | | - 11.76% |

You have had an opportunity to work problems of each kind of the pretest. I suggest that you take the following sample post test to determine whether or not you need additional practice before taking the post test.

Please follow the same directions given for the pretest.

If you feel you have mastered the rotary calculator, ask me for the post test. If you feel that additional practice would be helpful, please turn to the supplementary problems and work problems of the type that gave you difficulty on the sample post test. Ask me for the post test when you feel you can meet the objective stated at the beginning of the unit.

## SAMPLE POST TEST FOR ROTARY CALCULATOR

(1)
4.27
3.15
9.81
2.71
5.23
8.09
5.04
2.41
9.15
4.29

(2)
1.73
2.13
8.42
5.16
1.07
5.41
6.05
7.35
4.60
2.89

(3)
21.90
16.75
29.43
54.98
22.04
13.05
71.24
91.58
41.12
79.08

(4)
27.05
41.59
73.05
24.09
62.24
15.67
91.59
24.02
71.05
52.28

(5)
10.52
41.09
.32
365.55
2,104.61
14.98
52.60
27.17
407.90
1,230.17

(6)
15.95
-3.47

(7)
67.24
-20.91

(8)
275.39
-17.05

(9)
401.28
-720.52

(10)
734.24
-899.05

(11) 1198 + 547 =
592 + 547 =
981 + 547 =

(12) 541.5 x 24.09 =

(13) 47.3 x 18 =

(14) 89.3 x 32.2 =

(15) 19 x 133 x 506 =

(16) 18.2 x 1.05 x 17.5 =

(17) 185.54 ÷ 72.5 =

(18) 467.61 ÷ 11.04 =

(19) 422.57 ÷ 94 =

(20) Convert 271 feet to yards =

(21) Convert 5,071 inches to feet =

(22) Accumulate:

14.15 x 74.253
3.02 x 4.21
85.2 x .13
506.02 x 2.53

| | Interest on: | Answer |
|---|---|---|
| (23) | $ 590.25 at 2 1/2% = | |
| (24) | 3,540.50 at 1 3/4% = | |
| (25) | 1,975.00 at 8% = | |
| (26) | 2,624.75 at 8 1/4% = | |

Find the percentage of increase or decrease:

| | Previous | Current | Percentage + or − |
|---|---|---|---|
| (27) | 50,190 | 10,711 | |
| (28) | 13,790 | 15,204 | |
| (29) | 4,924 | 3,778 | |
| (30) | 9,653 | 8,500 | |
| (31) | 30,546 | 29,753 | |

Find the net amount of the following:

(32) $1,926.75 less 5%, 20%, 13% =

(33) $ 752.00 less 25%, 15%, 20% =

(34) $1,050.75 less 5%, 15%, 10% =

Check your answers on the following page.

## ANSWERS TO SAMPLE POST TEST FOR ROTARY CALCULATOR

(1) 54.15
(2) 44.81
(3) 441.17
(4) 482.63
(5) 4,254.91
(6) 12.48
(7) 46.33
(8) 258.34
(9) 319.24 Cr.
(10) 164.81 Cr.
(11) 1,745
1,139
1,528

(12) 13,044.735
(13) 851.4
(14) 2,875.46
(15) 1,278.662
(16) 334.425
(17) 2.55917
(18) 42.35597
(19) 4.49542
(20) 90 yds. 1 ft.
(21) 422 ft. 7 in.
(22) 2,354.70075
(23) 14.76

(24) 61.96
(25) 158.00
(26) 216.54
(27) 78.65% -
(28) 10.25% +
(29) 23.27% -
(30) 11.94% -
(31) 2.59% -
(32) $1,273.97
(33) $383.52
(34) $763.63

If the sample post test indicates that you are ready for the post test, please ask me for it. If you feel you need further practice, please work additional problems of the type which gave you difficulty. Supplementary problems can be found in the back of the workbook.

# TEN-KEY ADDING-LISTING MACHINE

# TEN-KEY ADDING-LISTING MACHINE

The ten-key adding-listing machine is one of the most popular and widely used business machines. It is easy to operate and provides a printed record of the computations, thus the term listing machine. It is called a ten-key because it has ten keys.

Addition is the major operation performed on this machine; however, subtraction, multiplication, and division are also possible.

There are several different makes and models of the ten-key adding-listing machine on the market, and they are all operated almost the same way. In this class, we will use the Victor and the Burroughs.

A touch system similar to the touch system used by typists is used on the ten-key adding-listing machine. The middle row of keys--the 4, 5, and 6--is the home row.

Objective: Learner must work correctly 23 problems out of 25 within 15 minutes.

Some of you may have attained a high degree of skill on the ten-key adding-listing machine from previous training and experience, so at this point, you should take the pretest on the following pages to see if you need further instruction and practice on the ten-key adding-listing machine.

## PRETEST FOR TEN-KEY ADDING-LISTING MACHINE

Time yourself for 15 minutes. Work quickly. Work each problem one time. If you finish in less than 15 minutes, use the remaining time to check your answers.

1. Round all reciprocals off to five decimal places.
2. Round all decimal equivalents off to five decimal places.
3. Round all products off to five decimal places.
4. Punctuate all answers with commas and decimal points.
5. Indicate special notations in answers, such as Cr., %, etc.
6. Number all the problems with the non-add key.

| (1) | (2) | (3) |
|---|---|---|
| 7.42 | 14.98 | 174.25 |
| 5.98 | 47.21 | 17.92 |
| 4.09 | 62.43 | 386.40 |
| 7.38 | 89.61 | 100.07 |
| 4.02 | 27.42 | 201.19 |
| 6.15 | 43.22 | 42.75 |
| 9.37 | 27.61 | 795.80 |
| 5.24 | 42.23 | 205.08 |

| (4) | (5) | (6) |
|---|---|---|
| 1,792.50 | 1,742.19 | 2,077.22 |
| 3,204.25 | 22,906.20 | 15.95 |
| 4,691.22 | 4,201.50 | 44.11 |
| 2,075.95 | 21.15 | 5,421.20 |
| 721.80 | 4,101.25 | 65.63 |
| 205.20 | 6,219.86 | 58.59 |
| 6,234.16 | 307.05 | 38.14 |
| 9,321.55 | 2,591.23 | 2,134.25 |

(7) 145 x 29 =

(8) 224 x 97 =

(9) 2,487 x 118 =

(10) 7,182 x 65 =

(11) 1,901 x 742 =

(12) 4.29 x 3.7 =

(13) 17.25 x 421 =

(14) 215 ÷ 40 =
(reciprocal of 40 is .025)

(15) 317 ÷ 33 =
(reciprocal of 33 is .0303)

(16) 19.27 ÷ 6 =
(reciprocal of 6 is .16667)

(17) 2439 ÷ 6 1/2 =
(reciprocal of 65 is .01539)

(18) 29,784 ÷ 999 =
(reciprocal of 999 is .001)

(19) 951 ÷ 1/5 =
(reciprocal of 20 is .05)

(20) 121.70
$\underline{-18.95}$

(21) 98.75
$\underline{-47.08}$

(22) 12,984.20
$\underline{-14,609.80}$

(23) 45 x 17
34 x 375
8 x 95
$\underline{421 \text{ x } 18}$

(24) (76 x 324) - (44 x 85) =

(25) 175 x 46 x 32 =

## ANSWERS TO PRETEST - TEN-KEY ADDING-LISTING MACHINE

(1) 49.65
(2) 354.71
(3) 1,923.46
(4) 28,246.63
(5) 42,090.43
(6) 9,855.09
(7) 4,205
(8) 21,728
(9) 293,466
(10) 466.830
(11) 1,410,542
(12) 15.873
(13) 7,262.25
(14) 5.375
(15) 9.6051
(16) 3.21173
(17) 375.3621
(18) 29.784
(19) 4,755
(20) 102.75
(21) 51.67
(22) 1,625.60 Cr.
(23) 21,853
(24) 20,884
(25) 257,600

If the pretest indicates that the stated objective has been met, ask me for the post test.

If the pretest indicates that further study and practice would be helpful, select one of the ten-key adding machines in your classroom, and have it in front of you as you view film No. 9 and listen to tape No. 9 if the machine you select is a Victor or film No. 10 and tape No. 10 if the machine you select is a Burroughs.

## PROBLEMS FOR TEN-KEY ADDING-LISTING

Addition

(1) 11
22
33
12
13
32
31
21

(2) 44
55
66
45
46
54
56
65

(3) 55
66
44
46
64
56
65
46

(4) 23
32
33
22
31
13
12
21

(5) 77
88
99
78
87
79
97
89

(6) 88
55
33
44
66
99
77
22

(7) 89
78
67
56
45
34
23
12

(8) 21
32
43
54
65
76
87
98

Answers

(1) 175
(2) 431
(3) 442
(4) 187
(5) 694
(6) 484
(7) 404
(8) 476

AVOID THE TEMPTATION TO LOOK AT THE KEYS.

(9) 987
465
321
223
123
654
456
789

(10) 879
312
654
564
446
544
445
456

(11) 369
258
147
741
852
963
789
123

(12) 147
258
369
366
588
885
744
255

(13) 567
675
674
357
963
852
321
654

(14) 465
987
321
123
789
456
654
963

(15) 963
369
789
987
258
852
741
147

(16) 744
446
669
558
122
332
556
665

DO NOT FOLLOW THE COLUMN OF NUMBERS
WITH YOUR LEFT INDEX FINGER

Answers

(9) 4,018
(10) 4,300
(11) 4,242
(12) 3,612
(13) 5,063
(14) 4,758
(15) 5,106
(16) 4,092

(17) 70
20
30
40
90
80
60
50

(18) 60
40
90
80
70
70
70
40

(19) 30
20
80
80
60
60
30
40

(20) 50
60
80
90
20
30
60
60

(21) 300
400
430
403
304
340
340
430

(22) 300
400
430
403
304
340
340
430

(23) 500
504
605
506
600
500
400
450

(24) 100
102
202
200
302
300
303
103

KEEP YOUR EYES ON YOUR COPY!

Answers

(17) 440
(18) 520
(19) 400

(20) 450
(21) 2,947
(22) 2,947

(23) 4,065
(24) 1,612

(25) 700
800
900
909
808
707
708
809

(26) 908
960
690
820
205
704
400
700

(27) 300
306
690
700
740
407
401
140

(28) 850
805
508
502
960
630
306
401

(29) 123
456
789
321
654
987
321
654

(30) 404
604
470
960
620
206
704
420

(31) 906
405
506
456
321
789
406
604

(32) 676
848
978
697
789
321
654
604

READ EACH ITEM AS A UNIT.

Answers

(25) 6,341

(26) 5,387

(27) 3,684

(28) 4,962

(29) 4,305

(30) 4,388

(31) 4,393

(32) 5,567

(33) .39
.47
.28
.25
.14
.17
.69
.36

(34) .78
.89
.79
.56
.45
.46
.64
.97

(35) .31
.12
.21
.22
.33
.13
.32
.23

(36) .87
.98
.65
.56
.23
.32
.78
.96

(37) .40
.44
.76
.32
.13
.03
.33
.67

(38) .50
.05
.55
.42
.24
.44
.45
.40

(39) .99
.66
.06
.60
.99
.90
.96
.69

(40) .47
.41
.14
.40
.70
.04
.07
.77

DID YOU WRITE THE DECIMAL
POINT IN YOUR ANSWER?

(33) 2.75
(34) 5.54
(35) 1.87
(36) 5.35
(37) 3.08
(38) 3.05
(39) 5.85
(40) 3.00

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| (41) | 14.70 | (42) | 89.70 | (43) | 43.80 |
|  | 14.74 |  | 45.06 |  | 19.25 |
|  | 7.44 |  | 1.23 |  | 204.80 |
|  | 4.07 |  | 13.02 |  | 24.75 |
|  | 4.77 |  | 7.90 |  | 19.98 |
|  | 7.04 |  | 21.30 |  | 34.20 |
|  | 44.70 |  | 32.20 |  | 29.85 |
|  | 5.00 |  | 7.90 |  | 3.50 |
| ST |  | ST |  | ST |  |
|  | 23.05 |  | 25.78 |  | 65.50 |
|  | 17.80 |  | 14.71 |  | 5.75 |
|  | 58.96 |  | 4.85 |  | 7.77 |
|  | 32.10 |  | 5.96 |  | 39.65 |
|  | 63.90 |  | 20.30 |  | 36.43 |
|  | 4.21 |  | 58.20 |  | 10.45 |
|  | 3.69 |  | 89.75 |  | 639.80 |
|  | 30.60 |  | 605.30 |  | .96 |
| ST |  | ST |  | ST |  |
|  | 7.80 |  | 144.50 |  | 21.56 |
|  | 17.40 |  | 29.46 |  | 14.61 |
|  | 12.39 |  | 723.21 |  | 6.06 |
|  | 4.98 |  | 192.70 |  | 17.39 |
|  | 15.41 |  | 287.67 |  | 36.43 |
|  | 333.92 |  | 9.98 |  | 147.48 |
|  | 4.88 |  | 70.07 |  | 45.87 |
| T |  | T |  | T |  |

Answers

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| (41) | 102.46 | ST | (42) | 218.31 | ST | (43) | 380.13 | ST |
|  | 336.77 | ST |  | 1,043.16 | ST |  | 1,186.44 | ST |
|  | 733.55 | T |  | 2,500.75 | T |  | 1,475.84 | T |

## Subtraction

| | | |
|---|---|---|
| (1) 795.20<br>-399.85 | (2) 325.16<br>-204.98 | (3) 277.34<br>-69.85 |
| (4) 469.85<br>-377.89 | (5) 311.42<br>-14.63 | (6) 189.67<br>-145.30 |
| (7) 3,469.25<br>-985.60 | (8) 2,724.86<br>-924.17 | (9) 1,300.00<br>-894.16 |
| (10) 554.11<br>-700.00 | (11) 1,875.20<br>-2,450.00 | (12) 204.75<br>-824.19 |

DID YOU INDICATE A CREDIT ANSWER?

| | | |
|---|---|---|
| (13) 205.88<br>-990.40 | (14) 192.03<br>-636.40 | (15) 1,367.15<br>-6,412.55 |
| (16) 157.60<br>-29.85 | (17) 76.50<br>-91.80 | (18) 513.34<br>-416.88 |

## Answers

| | |
|---|---|
| (1) | 395.35 |
| (2) | 120.18 |
| (3) | 207.49 |
| (4) | 91.96 |
| (5) | 296.79 |
| (6) | 44.37 |
| (7) | 2,483.65 |
| (8) | 1,800.69 |
| (9) | 405.84 |
| (10) | 145.89 Cr. |
| (11) | 574.80 Cr. |
| (12) | 619.44 Cr. |
| (13) | 784.52 Cr. |
| (14) | 444.37 Cr. |
| (15) | 5,045.40 Cr. |
| (16) | 127.75 |
| (17) | 15.30 Cr. |
| (18) | 96.46 |

## Multiplication

(1) 45 x 16 =

(2) 19 x 35 =

(3) 104 x 66 =

(4) 24 x 745 =

(5) 91 x 125 =

(6) 645 x 88 =

DID YOU INDEX THE LARGER NUMBER?

(7) 406 x 89=

(8) 45 x 421 =

(9) 322 x 5 =

(10) 542 x 21 =

(11) 28 x 96 =

(12) 776 x 24 =

ARE YOU USING THE SHORTCUT METHOD?

(13) 638 x 99 =

(14) 778 x 95 =

(15) 189 x 29 =

(16) 1,970 x 84 =

(17) 238 x 127 =

(18) 1,970 x 8 =

(19) 826 x 70 =

(20) 627 x 15 =

(21) 305 x 77 =

Answers

| | |
|---|---|
| (1) | 720 |
| (2) | 665 |
| (3) | 6,864 |
| (4) | 17,880 |
| (5) | 11,375 |
| (6) | 56,760 |
| (7) | 36,134 |
| (8) | 18,945 |
| (9) | 1,610 |
| (10) | 11,382 |
| (11) | 2,688 |
| (12) | 18,624 |
| (13) | 63,162 |
| (14) | 73,910 |
| (15) | 5,481 |
| (16) | 165,480 |
| (17) | 30,226 |
| (18) | 15,760 |
| (19) | 57,820 |
| (20) | 9,405 |
| (21) | 23,485 |

## Multiplying Decimals

(22) 4.4 x 6.9 =

(23) 23.7 x 45 =

(24) 15.95 x 16 =

DID YOU ADD THE NUMBER OF DECIMAL POINTS IN THE MULTIPLICAND TO THE NUMBER OF DECIMAL POINTS IN THE MULTIPLIER TO FIND OUT HOW MANY DECIMAL PLACES TO MARK OFF IN THE PRODUCT?

(25) 14.62 x 5 =

(26) 41.02 x 79 =

(27) 35.18 x 9 =

(28) 75.32 x .05 =

(29) 8.26 x 70 =

(30) 900 x .25 =

(31) 411.18 x 24 =

(32) 2.9 x 225 =

(33) 17.01 x 6 =

(34) 56.78 x 15 =

(35) 21 x .75 =

(36) 2.5 x 140 =

| | Answers |
|---|---|
| (22) | 30.36 |
| (23) | 5,066.5 |
| (24) | 255.20 |
| (25) | 73.1 |
| (26) | 3,240.58 |
| (27) | 316.62 |
| (28) | 3.766 |
| (29) | 578.2 |
| (30) | 225 |
| (31) | 9,868.32 |
| (32) | 652.5 |
| (33) | 102.06 |
| (34) | 851.70 |
| (35) | 15.75 |
| (36) | 350 |

## Accumulative Multiplication

(1)
25 x 19
4 x 32
10 x 16
25 x 62

(2)
17 x 801
33 x 65
5 x 102
12 x 44

(3)
99 x 53
15 x 15
4 x 87
45 x 14

(4)
701 x 3
10 x 8
601 x 22
6 x 7

(5)
45 x 12
25 x 62
897 x 56
72 x 158

(6)
414 x 15
951 x 5
149 x 21
17 x 6

YOU WILL SAVE TIME BY USING THE SHORT-CUT METHOD.

(7)
42 x 67
8 x 19
6 x 78
58 x 4

(8)
78 x 12
212 x 79
74 x 32
50 x 12

(9)
18 x 345
23 x 452
95 x 15
12 x 456

(10)
18 x 13
14 x 9
9 x 75
8 x 3

(11)
21 x 21
6 x 91
14 x 8
3 x 15

(12)
32 x 50
15 x 79
12 x 35
95 x 15

Answers

(1) 2,313
(2) 16,800
(3) 6,450
(4) 15,447
(5) 63,698
(6) 14,196
(7) 3,666
(8) 20,652
(9) 23,503
(10) 1,059
(11) 1,144
(12) 4,630

Negative Multiplication

| | | Answers | |
|---|---|---|---|
| (1) | (61 x 7) - (14 x 24) = | (1) | 91 |
| (2) | (42 x 75) - (21 x 8) = | (2) | 2,982 |
| (3) | (3 x 42) - (7 x 9) = | (3) | 63 |
| (4) | (45 x 12) - (56 x 72) = | (4) | 3,492 Cr. |
| (5) | (124 x 10) - (24 x 6) = | (5) | 1,096 |
| (6) | (401 x 16) - (31 x 18) = | (6) | 5,858 |
| (7) | (325 x 16) - (302 x 7) = | (7) | 3,086 |
| (8) | (183 x 17) - (42 x 15) = | (8) | 2,481 |
| (9) | (301 x 95) - (7 x 14) = | (9) | 28,497 |
| (10) | (91 x 3) - (12 x 35) = | (10) | 147 Cr. |
| (11) | (24 x 6) - (12 x 20) = | (11) | 96 Cr. |
| (12) | (11 x 14) - (15 x 5) = | (12) | 79 |

Multifactor Multiplication

| | | Answers | |
|---|---|---|---|
| (1) | 3 x 16 x 4 = | (1) | 192 |
| (2) | 91 x 20 x 7 = | (2) | 12,740 |
| (3) | 41 x 16 x 4 = | (3) | 2,624 |
| (4) | 3 x 8 x 17 = | (4) | 408 |
| (5) | 41 x 7 x 12 = | (5) | 3,444 |
| (6) | 3 x 16 x 21 = | (6) | 1,008 |
| (7) | 42 x 12 x 4 = | (7) | 2,016 |
| (8) | 31 x 14 x 7 = | (8) | 3,038 |
| (9) | 36 x 22 x 6 | (9) | 4,752 |
| (10) | 175 x 82 x 23 = | (10) | 330,050 |
| (11) | 59 x 31 x 21 = | (11) | 38,409 |
| (12) | 55 x 25 x 16 = | (12) | 22,000 |

## Division

Remember that division on a ten key adding-listing machine is not automatic, so it is performed by using reciprocals. A chart of reciprocals is found in the back of this workbook. Round the reciprocals off to five decimal places.

(1) 795 ÷ 4 =
(2) 497 ÷ 40 =
(3) 129 ÷ 25 =
(4) 4,545 ÷ 114 =
(5) 6,667 ÷ 120 =
(6) 8,333 ÷ 5 =
(7) 3,833 ÷ 31 =
(8) 9,673 ÷ 19 =
(9) 377 ÷ 82 =
(10) 195 ÷ 32 =

On the Victor machine, be sure to use the decimal indicator to locate decimals.

(11) 478 ÷ 50 =
(12) 4,250 ÷ 55 =
(13) 419 ÷ 35 =
(14) 66,225 ÷ 6 =
(15) 2,283 ÷ 44 =
(16) 18,870 ÷ 122 =
(17) 892 ÷ 49 =
(18) 991 ÷ 75 =
(19) 952 ÷ 54 =
(20) 743 ÷ 72 =

### Answers

| | |
|---|---|
| 1. | 198.75 |
| 2. | 12.425 |
| 3. | 5.16 |
| 4. | 39.85965 |
| 5. | 55.53611 |
| 6. | 1666.6 |
| 7. | 123.65258 |
| 8. | 509.08999 |
| 9. | 4.5994 |
| 10. | 6.09375 |
| 11. | 9.56 |
| 12. | 77.265 |
| 13. | 11.97083 |
| 14. | 11,037.72075 |
| 15. | 51.89259 |
| 16. | 154.734 |
| 17. | 18.20572 |
| 18. | 13.21003 |
| 19. | 17.63104 |
| 20. | 10.32027 |

## Division with Fractions

(21) 1075 ÷ 1 1/4 =

> Remember to convert fractions to decimals: 1 1/4 = 1.25

> When you found the reciprocal for 125, did you remember to move the decimal point two places to the right? Because of the two decimal points in the divisor.

(22) 1780 ÷ 7 1/2 =

(23) 45 ÷ 1/4 =

(24) 529 ÷ 6.6 =

(25) 64.21 ÷ 6 1/2 =

(26) 320 ÷ .19 =

(27) 414 ÷ .87 =

(28) 119 ÷ 11.5 =

(29) 47,505 ÷ 90 =

(30) 375 ÷ 25 =

### Answers

21. 860
22. 237.274
23. 180
24. 80.1435
25. 9.88191
26. 1,684.16
27. 475.686
28. 10.353
29. 527.78055
30. 15

You have had an opportunity to work problems of each kind on the pretest. I suggest that you take the following sample post test to determine whether or not you need additional practice before taking the post test.

Please follow the same directions given for the pretest.

## SAMPLE POST TEST

### 10-Key Adding-Listing Machine

1. 4.19
7.42
5.80
4.25
7.89
9.33
7.45
2.50

2. 45.30
78.62
19.95
47.32
29.61
69.45
42.33
27.64

3. 250.85
504.20
70.20
336.98
79.40
205.19
89.45
176.34

4. 2,435.62
3,701.22
6,324.19
9,421.50
741.97
2.01
75.40
1,204.25

5. 19.65
450.32
795.20
20.40
321.16
9,842.55
421.95
25.00

6. 45.90
42.75
100.54
17.95
4.50
496.75
4,201.13
1.19

7. 205 X 16 =

8. 421 X 86 =

9. 4019 X 211 =

10. 4325 X 75 =

11. 2902 X 632 =

12. 3.39 X 2.5 =

13. 14.95 X 975 =

14. 75 ÷ 6 =
(reciprocal of 6 is .16667)

15. 419 ÷ 40 =
(reciprocal of 40 is .025)

16. 74.25 ÷ 33 =
(reciprocal of 33 is .0303)

17. 3426 ÷ 66 1/2 =
(reciprocal of 665 is .0015)

18. 24,397 ÷ 999 =
(reciprocal of 999 is .001)

19. 478 ÷ 1/5 =
(reciprocal of 20 is .05)

20. 104.02
-19.88

21. 419,959.40
-47,201.98

22. 16,321
-19,000

23. 23 X 136
99 X 114
94 X 37
75 X 11

24. (236 X 11) - (37 X 75) =

25. 95 X 72 X 21 =

## ANSWERS TO SAMPLE POST TEST

### 10-Key Adding-Listing Machine

| | | | |
|---|---|---|---|
| 1. | 48.83 | 14. | 12.50025 |
| 2. | 360.22 | 15. | 10.475 |
| 3. | 1,712.61 | 16. | 2.24978 |
| 4. | 23,906.16 | 17. | 51.390 |
| 5. | 11,896.23 | 18. | 24.397 |
| 6. | 4,910.71 | 19. | 2,390 |
| 7. | 3,280 | 20. | 84.14 |
| 8. | 36,206 | 21. | 372,757.42 |
| 9. | 848,009 | 22. | 2,679 Cr. |
| 10. | 324,375 | 23. | 18,717 |
| 11. | 1,834,064 | 24. | 179 Cr. |
| 12. | 8.475 | 25. | 143,640 |
| 13. | 14,576.25 | | |

If the sample post test indicates that you are ready for the post test, please ask me for it. If you feel you need further practice, please work additional problems of the type which gave you difficulty. Supplementary problems can be found in the back of the workbook.

# FULL KEYBOARD ADDING-LISTING MACHINE

## THE FULL KEYBOARD ADDING-LISTING MACHINE

The full keyboard adding-listing machine is easy to recognize because it has a full keyboard and a paper tape on which each calculation is listed.

There are other machines in the classroom which have a full keyboard and other machines which have a paper tape, but none with a combination of the two.

The full keyboard adding-listing machine is used primarily for adding; however, subtraction, multiplication, and division are also possible.

There are several different makes and models of the full keyboard adding-listing machines on the market, and they are all operated the same way. In this class we will use the Victor.

The objective is for you to work correctly 23 problems out of 25 in 20 minutes.

Perhaps some of you who have had office experience of office machines in high school already know how to operate a full keyboard adding-listing machine. At this point you should take the pretest on the following pages to see if you need further instruction and practice on the full keyboard adding-listing machine.

# PRETEST FOR FULL KEYBOARD ADDING-LISTING MACHINE

Time yourself for 20 minutes. Work quickly. Work each problem one time. If you finish in less than 20 minutes, use the remaining time to check your answers.

1. Round all reciprocals off to five decimal places.
2. Round all decimal equivalents off to five decimal places.
3. Round all products off to five decimal places.
4. Punctuate all answers with commas and decimal points.
5. Indicate special notations in answers, such as Cr., %, etc.
6. Number each problem with the non-add key.

PRETEST ON FULL KEYBOARD ADDING-LISTING MACHINE

1. 764
327
421
985
719
698
301
222

2. 401
614
195
762
534
299
883
929

3. 15.75
48.72
55.41
38.38
36.68
532.94
893.25
47.87

4. 1,484.20
3,201.17
44.60
302.90
2,624.32
476.15
97.02
325.16

5. 96.31
417.62
54.98
302.44
1,106.18
10.18
2.01
16.20

6. 82.31
16.79
4.49
207.75
3,721.84
7.99
24.68
19.19

7. 75 x 16 =

8. 224 x 95 =

9. 415 x 26 =

10. 7,422 x 66 =

11. 1,995 x 421 =

12. 3.26 x 4.9 =

13. 16.15 x 22 =

14. 419 ÷ 92 =
(reciprocal of 92 is .01087)

15. 5,442 ÷ 12 1/2 =
(reciprocal of 125 is .008)

16. 8,889 ÷ 32 =
(reciprocal of 32 is .03125)

17. 875 ÷ 1/4 =
(reciprocal of 25 is .04)

18. 2,545 ÷ 5 =
(reciprocal of 5 is .2)

19. 729 ÷ 16 =
(reciprocal of 16 is .0625)

20. 419.20
-322.19

21. 889.50
-74.95

22. 196.08
-425.00

23. 166.67
-220.10

24. 18,321.40
-2,749.88

25. 6,543.90
-4,201.35

## ANSWERS TO PRETEST ON FULL KEYBOARD ADDING-LISTING MACHINE

1. 4,437
2. 4,617
3. 1,669.00
4. 8,555.52
5. 2,013.92
6. 4,085.04
7. 1,200
8. 21,280
9. 10,790
10. 489,852
11. 839,895
12. 15.974
13. 355.3
14. 4.55453
15. 435.36
16. 277.78125
17. 3,500
18. 509
19. 45.5625
20. 97.01
21. 814.55
22. 228.92 Cr.
23. 53.43 Cr.
24. 15,571.52
25. 2,342.55

If the pretest indicates that the stated objective has been met, ask me for the post test.

If the pretest indicates that further study and practice would be helpful, select one of the full keyboard adding-listing machines in your classroom and have it in front of you as you view film No. 8 and listen to tape No. 8.

## PROBLEMS FOR FULL KEYBOARD ADDING-LISTING MACHINE

Addition

| 1. | 2. | 3. | 4. | Answers |
|---|---|---|---|---|
| 22 | 202 | 14 | 33 | 1. 385 |
| 44 | 40 | 11 | 22 | 2. 1,979 |
| 55 | 330 | 19 | 34 | 3. 124 |
| 77 | 404 | 17 | 45 | 4. 312 |
| 88 | 50 | 18 | 23 | 5. 382 |
| 33 | 505 | 15 | 44 | 6. 1,782 |
| 44 | 44 | 17 | 56 | 7. 2,194 |
| 22 | 404 | 13 | 55 | 8. 2,810 |

Remember to use the correct finger techniques
demonstrated in the film

| 5. | 6. | 7. | 8. |
|---|---|---|---|
| 51 | 120 | 220 | 300 |
| 31 | 102 | 320 | 400 |
| 61 | 304 | 202 | 500 |
| 21 | 40 | 302 | 550 |
| 62 | 403 | 330 | 50 |
| 72 | 430 | 300 | 40 |
| 52 | 340 | 200 | 430 |
| 32 | 43 | 320 | 540 |

Are you depressing the key and
the plus bar simultaneously?

| 9. | 10. | 11. | 12. | Answers |
|---|---|---|---|---|
| 401 | 450 | 206 | 421 | 9. 3,379 |
| 310 | 540 | 107 | 311 | 10. 2,561 |
| 130 | 45 | 702 | 110 | 11. 2,499 |
| 702 | 607 | 72 | 542 | 12. 2,038 |
| 607 | 70 | 721 | 31 | |
| 421 | 706 | 27 | 471 | |
| 107 | 76 | 62 | 91 | |
| 701 | 67 | 602 | 61 | |

13.
345
627
421
892
723
407
89
388

14.
123
456
388
88
98
465
76
234

15.
789
87
91
801
891
101
81
907

16.
412
455
678
871
596
69
456
626

Answers

13. 3,892
14. 1,928
15. 3,748
16. 4,163

17.
17.95
4.98
7.91
8.26
4.21
22.50
9.00
.75

18.
27.95
24.89
.75
1.70
14.41
34.05
27.00
63.70

19.
71.85
4.95
28.00
4.56
19.00
6.00
4.50
9.80

20.
4.05
.55
7.95
6.50
71.89
24.05
56.45
.95

Answers

17. 75.56
18. 194.45
19. 148.66
20. 172.39
21. 278.09
22. 250.34
23. 296.78
24. 876.22

21.
9.50
99.50
4.90
75.00
45.54
4.90
28.80
9.95

22.
75.00
57.00
6.71
7.95
9.80
40.70
7.98
45.20

23.
79.99
9.00
2.29
14.14
22.64
84.16
50.50
34.06

24.
63.70
345.20
47.85
18.95
10.72
124.00
200.80
65.00

[redacted]

Addition Subtotals

| (25) | (26) | (27) |
|---|---|---|
| 7.77 | 19.45 | 33.60 |
| 4.75 | 7.80 | 48.75 |
| 7.95 | 9.25 | 9.50 |
| 4.99 | 49.99 | 18.75 |
| 6.89 | 8.20 | 34.20 |
| 7.98 | 4.01 | 8.95 |
| 65.00 | 17.60 | 400.70 |
| ST | ST | ST |
| 55.05 | 23.40 | 2.88 |
| 3.21 | 400.75 | 80.75 |
| 3.45 | 19.40 | 19.25 |
| 162.00 | 4.35 | 3.60 |
| 200.80 | 7.80 | 17.50 |
| 80.12 | 19.50 | 44.02 |
| 64.00 | 7.20 | 9.00 |
| ST | ST | ST |
| 3.75 | 124.00 | 15.00 |
| 17.95 | 19.45 | 30.52 |
| 77.53 | 45.00 | 99.25 |
| 4.50 | 1.50 | 147.80 |
| 88.50 | 3.21 | 80.99 |
| 80.12 | 7.80 | 4.25 |
| 70.90 | 125.50 | 6.09 |
| T | T | T |

Answers

| | | |
|---|---|---|
| (25) | 105.33 | ST |
| | 673.96 | ST |
| | 1,017.21 | T |
| (26) | 116.30 | ST |
| | 598.70 | ST |
| | 925.16 | T |
| (27) | 554.45 | ST |
| | 731.45 | ST |
| | 1,115.35 | T |

| (28) | (29) | (30) |
|---|---|---|
| 4.23 | 37.90 | .47 |
| 245.90 | 425.60 | 1.84 |
| 730.41 | 7.80 | 11.10 |
| 71.00 | 398.50 | 17.95 |
| 373.17 | 4.75 | 1.80 |
| 19.85 | 9.45 | 3.20 |
| 45.98 | 16.50 | 48.70 |
| ST | ST | ST |
| 19.00 | 250.00 | 14.27 |
| 4.75 | 75.00 | 43.26 |
| 7.70 | 8.90 | 4.00 |
| 18.36 | 14.80 | 17.95 |
| 102.50 | 7.20 | 11.80 |
| 52.45 | 13.98 | 21.50 |
| 19.80 | 7.50 | 4.60 |
| ST | ST | ST |
| 34.50 | 41.20 | 3.25 |
| 199.88 | 20.00 | 4.80 |
| 4.70 | 170.00 | 9.00 |
| 15.45 | 4.08 | 14.75 |
| 19.85 | 8.00 | 38.95 |
| 7.90 | 978.40 | 41.20 |
| 2.25 | 18.00 | 165.20 |
| T | T | T |

Answers

| (28) | | | (29) | | | (30) | | |
|---|---|---|---|---|---|---|---|---|
| | 1,490.54 | ST | | 900.50 | ST | | 85.06 | ST |
| | 1,715.10 | ST | | 1,277.88 | ST | | 202.44 | ST |
| | 1,999.63 | T | | 2,517.56 | T | | 479.59 | T |

(31) 9.50
9.50
9.50
9.50
13.00
13.00
13.00
13.00

(32) 2.44
2.44
2.44
2.44
15.00
15.00
15.00
15.00

(33) 17.00
17.00
17.00
17.00
17.00
3.24
3.24
3.24

(34) 26.30
26.30
26.30
26.30
19.00
19.00
19.00
19.00

(35) 14.39
14.39
14.39
14.39
22.44
22.44
22.44
22.44

(36) 17.95
17.95
17.95
17.95
62.37
62.37
62.37
62.37

(37) 8.00
8.00
8.00
19.50
19.50
19.50
33.00
33.00

(38) 12.50
12.50
12.50
12.50
42.37
42.37
42.37
42.37

Answers

(31) 90.00

(32) 69.76

(33) 94.72

(34) 181.20

(35) 147.32

(36) 321.28

(37) 148.50

(38) 219.48

| (39) | (40) | (41) |
|---|---|---|
| 7.95 | 92.70 | 6.12 |
| 7.95 | 92.70 | 6.12 |
| 7.95 | 92.70 | 6.12 |
| ST | ST | ST |
| 12.35 | 37.00 | 9.22 |
| 12.35 | 37.00 | 9.22 |
| 12.35 | 37.00 | 9.22 |
| ST | ST | ST |
| 29.30 | 32.44 | 3.65 |
| 29.30 | 32.44 | 3.65 |
| 29.30 | 32.44 | 3.65 |
| T | T | T |

| (42) | (43) | (44) |
|---|---|---|
| 19.95 | 25.00 | 23.95 |
| 42.65 | 43.25 | 42.50 |
| 79.50 | 8.00 | 97.80 |
| 32.44 | 15.00 | 425.70 |
| 18.25 | 3.50 | 31.25 |
| 224.04 | 46.00 | 17.80 |
| 14.88 | 17.00 | 980.90 |
| 76.70 | 4.95 | 17.60 |
| 12.50 | 92.00 | 4.95 |
| 20.00 | 17.00 | 9.98 |

Answers

| | | |
|---|---|---|
| (39) | 23.85 | ST |
| | 60.90 | ST |
| | 148.80 | T |
| (40) | 278.10 | ST |
| | 389.10 | ST |
| | 486.42 | T |
| (41) | 18.36 | ST |
| | 46.02 | ST |
| | 56.97 | T |
| (42) | 540.91 | |
| (43) | 271.70 | |
| (44) | 1,652.43 | |

|  | Answers |
|---|---|
| (45) 17.00 + 27.00 + 4.95 + 15.85 + 19.00 = | (45) 83.80 |
| (46) 195.00 + 63.50 + 66.00 + 87.66 + 99.75 = | (46) 511.91 |
| (47) 32.50 + 88.00 + 4.62 + 35.88 + 97.45 = | (47) 258.45 |
| (48) 43.50 + 10.80 + 14.89 + 9.09 + 402.25 = | (48) 480.53 |
| (49) 125.80 + 99.85 + 47.50 + 66.95 + 35.66 = | (49) 375.76 |
| (50) 42.50 + 87.90 + 77.85 + 32.50 + 32.50 = | (50) 273.25 |

| | | |
|---|---|---|
| (1) 970.85<br>- 421.06 | (2) 495.33<br>- 390.66 | (3) 124.85<br>- 88.66 |
| (4) 49.76<br>- 7.09 | (5) 887.42<br>- 605.18 | (6) 786.50<br>- 704.23 |
| (7) 189.50<br>- 86.32 | (8) 245.90<br>- 29.30 | (9) 143.66<br>- 69.88 |
| (10) 246.19<br>- 57.26 | (11) 45.32<br>- 12.11 | (12) 19.70<br>- 32.90 |
| (13) 187.66<br>- 302.99 | (14) 245.20<br>- 755.16 | (15) 602.20<br>- 843.16 |
| (16) 98.15<br>- 421.60 | (17) 804.74<br>- 98.16 | (18) 189.60<br>- 204.45 |
| (19) 899.60<br>- 900.42 | (20) 134.50<br>- 217.99 | (21) 17.98<br>- 43.16 |
| (22) 25.98<br>- 32.16 | (23) 168.40<br>- 29.80 | (24) 175.99<br>- 215.62 |

Answers

| | | |
|---|---|---|
| (1) | 549.79 | |
| (2) | 104.67 | |
| (3) | 36.19 | |
| (4) | 42.67 | |
| (5) | 282.24 | |
| (6) | 82.27 | |
| (7) | 103.18 | |
| (8) | 216.60 | |
| (9) | 73.78 | |
| (10) | 188.93 | |
| (11) | 33.21 | |
| (12) | 13.20 | Cr. |
| (13) | 115.33 | Cr. |
| (14) | 509.96 | Cr. |
| (15) | 240.96 | Cr. |
| (16) | 323.45 | Cr. |
| (17) | 706.58 | |
| (18) | 14.85 | Cr. |
| (19) | .82 | Cr. |
| (20) | 83.49 | Cr. |
| (21) | 25.18 | Cr. |
| (22) | 6.18 | Cr. |
| (23) | 138.60 | |
| (24) | 39.63 | Cr. |

## Multiplication

(1) 405 x 16 =
(2) 399 x 22 =
(3) 688 x 32 =
(4) 1795 x 421 =
(5) 799 x 60 =
(6) 24 x 86 =
(7) 167 x 19 =
(8) 204 x 642 =
(9) 67 x 211 =
(10) 4.02 x .75 =
(11) 263 x .25 =
(12) 19.95 x 3.5 =

Did you mark off decimal points?

(13) 3.575 x 4 =
(14) 19.8 x 66 =
(15) 263 x 3.5 =
(16) 244 x .85 =
(17) 7.75 x .25 =
(18) 42 x 4.5 =
(19) 78 x 3.07 =
(20) 19 x 4.25 =
(21) 475 x 3.75 =
(22) 41 x 9.33 =
(23) 278 x 8.5 =
(24) 425 x .85 =

## Answers

(1) 6,480
(2) 8,778
(3) 22,016
(4) 755,695
(5) 47,940
(6) 2,064
(7) 3,173
(8) 130,968
(9) 14,137
(10) 3.015
(11) 65.75
(12) 69.825
(13) 14.3
(14) 1,306.8
(15) 920.5
(16) 207.4
(17) 1.9375
(18) 189
(19) 239.46
(20) 80.75
(21) 1,781.25
(22) 382.53
(23) 2,363
(24) 361.25

Division

(1) 795 ÷ 12 = (2) 1450 ÷ 78 =

(3) 425 ÷ 16 = (4) 3250 ÷ 87 =

Reciprocals in back of workbook.

(5) 1895 ÷ 42 = (6) 660 ÷ 33 =

(7) 263 ÷ 4 1/2 = (8) 1675 ÷ 4/5 =

(9) 1325 ÷ 1/4 = (10) 1795 ÷ 75 =

(11) 2250 ÷ 32 = (12) 435 ÷ 65 =

(13) 329 ÷ 60 = (14) 180 ÷ 50 =

(15) 225 ÷ 90 = (16) 740 ÷ 25 =

(17) 440 ÷ 64 = (18) 2632 ÷ 75 =

(19) 2495 ÷ 16 = (20) 1732 ÷ 51 =

(21) 600 ÷ 15 = (22) 750 ÷ 62 =

(23) 195 ÷ 45 = (24) 145 ÷ 13 =

Answers

(1) 66.24735
(2) 18.589
(3) 26.5625
(4) 37.3425
(5) 45.11995
(6) 19.998
(7) 58.4386
(8) 2,093.75
(9) 5,300
(10) 23.92735
(11) 70.3125
(12) 6.69465
(13) 5.48443
(14) 3.6
(15) 2.49975
(16) 29.6
(17) 6.8772
(18) 35.08456
(19) 155.9375
(20) 33.96452
(21) 40.0002
(22) 12.0975
(23) 4.3399
(24) 11.1534

Do you remember how to handle reciprocals for numbers containing decimals?

You have had an opportunity to work problems of each kind on the pretest. I suggest that you take the following sample post test to determine whether or not you need additional practice before taking the post test.

Please follow the same directions given for the pretest.

Remember: Round all reciprocals off to five decimal places.

SAMPLE POST-TEST FOR FULL KEYBOARD ADDING-LISTING MACHINE

| (1) | (2) | (3) | (4) |
|---:|---:|---:|---:|
| 1.25 | 477 | 42.25 | 4,761.44 |
| 6.22 | 626 | 17.21 | 8,418.16 |
| 9.18 | 324 | 102.77 | 112.40 |
| 7.21 | 800 | 99.88 | 190.16 |
| 4.07 | 727 | 17.24 | 17.23 |
| 2.88 | 325 | 326.19 | 476.20 |
| 7.04 | 819 | 1,421.00 | 24.70 |
| 7.19 | 704 | 4.97 | 9.64 |

| (5) | (6) |
|---:|---:|
| 95.32 | 7.27 |
| 17.88 | 8.19 |
| 4.21 | 40.22 |
| 302.16 | 4.26 |
| 4,317.82 | 317.19 |
| 19.21 | 4.98 |
| 418.19 | 1,602.21 |
| 1.12 | 24.70 |

(7) 306 x 14 =

(8) 195 x 74 =

(9) 3028 x 322 =

(10) 5216 x 64 =

(11) 1803 x 513 =

(12) 4.16 x 1.6 =

(13) 16.21 x 742 =

(14) 64 ÷ 4 =
(reciprocal of 4 is .25)

(15) 421 ÷ 40 =
(reciprocal of 40 is .025)

(16) 29.75 ÷ 33 =
(reciprocal of 33 is .0303)

(17) 2316 ÷ 66 1/2 =
(reciprocal of 665 is .0015)

(18) 32,364 ÷ 999 =
(reciprocal of 999 is .001)

(19) 362 ÷ 1/5 =
(reciprocal of 20 is .05)

Sample Post Test (cont'd)

(20) 316.42
- 89.67

(21) 819.80
- 629.99

(22) 704.32
- 900.00

(23) 4,146.80
- 3,998.76

(24) 15.95
- 12.36

(25) 14,624
- 18,000

## ANSWERS TO SAMPLE POST TEST

### Full Keyboard Adding - Listing Machine

(1) 45.04
(2) 4,802
(3) 2,031.51
(4) 14,009.93
(5) 5,175.91
(6) 2,009.02
(7) 4,284
(8) 14,430
(9) 975,016
(10) 333,824
(11) 924,939
(12) 6.656
(13) 12,027.82
(14) 16
(15) 10.525
(16) .901425
(17) 34.74
(18) 32.364
(19) 1,810
(20) 226.75
(21) 189.81
(22) 195.68 Cr.
(23) 148.04
(24) 3.59
(25) 3,376 Cr.

If the sample post test indicates that you are ready for the post test, please ask me for it. If you feel you need further practice, please work additional problems of the type which gave you difficulty. Supplementary problems can be found in the back of the workbook.

## REQUEST FOR REPAIR SERVICE

______________________________
Date

______________________________________________

______________________________________________
(Description of machine)

______________________________
Equipment number

_________________________________________________________

_________________________________________________________

_________________________________________________________

_________________________________________________________
Nature of Problem

________________________________________
Name

[redacted]

REQUEST FOR REPAIR SERVICE

____________________________
Date

____________________________________________

____________________________________________
(Description of machine)

__________________________
Equipment number

_____________________________________________________

_____________________________________________________

_____________________________________________________

_____________________________________________________
Nature of Problem

___________________________________
Name

[redacted]

## REQUEST FOR REPAIR SERVICE

______________________________
Date

______________________________

______________________________
(Description of machine)

______________________________
Equipment number

______________________________

______________________________

______________________________

______________________________
Nature of Problem

______________________________
Name

[redacted]

# TIME SHEET

Name ______________________________

Machine ____________________________

| DATE | | HOURS | | | TIME | | | |
|---|---|---|---|---|---|---|---|---|
| Ex. | | | | | | | | |
| 12-4-70 | From | 1:30 | to | 2:20 | ______ | hours | 50 | minutes |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |

TOTAL HOURS ____________________

[redacted]

# TIME SHEET

Name ______________________________

Machine ______________________________

| DATE | HOURS | | | TIME | | |
|---|---|---|---|---|---|---|
| Ex. | | | | | | |
| 12-4-70 | From 1:30 | to 2:20 | ________ | hours | 50 | minutes |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |
| ________ | ________ | ________ | ________ | | ________ | |

TOTAL HOURS ______________________

[redacted]

TIME SHEET

Name ______________________________

Machine ___________________________

| DATE | HOURS | | TIME | |
|---|---|---|---|---|
| Ex. | | | | |
| 12-4-70 | From 1:30 | to 2:20 | ______ hours | 50 minutes |
| | | | | |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |

TOTAL HOURS ____________________

[redacted]

# TIME SHEET

Name ________________________________

Machine ______________________________

| DATE | HOURS | | | | TIME | | | |
|---|---|---|---|---|---|---|---|---|
| Ex. | | | | | | | | |
| 12-4-70 | From | 1:30 | to | 2:20 | ______ | hours | 50 | minutes |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |
| ______ | | ______ | | ______ | ______ | | ______ | |

TOTAL HOURS ______________________

[redacted]

## SUPPLEMENTARY PROBLEMS

### Addition

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| 44 | 45 | 12 | 78 | 47 |
| 22 | 56 | 21 | 87 | 65 |
| 33 | 66 | 31 | 77 | 32 |
| 55 | 44 | 32 | 88 | 21 |
| 33 | 54 | 13 | 98 | 89 |
| 44 | 64 | 23 | 89 | 76 |
| 22 | 46 | 33 | 97 | 88 |
| 44 | 55 | 22 | 79 | 34 |

| 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|
| 24 | 19 | 45 | 505 | 990 |
| 35 | 24 | 32 | 404 | 875 |
| 79 | 76 | 98 | 504 | 333 |
| 84 | 44 | 78 | 405 | 782 |
| 34 | 32 | 67 | 302 | 901 |
| 27 | 25 | 43 | 200 | 324 |
| 41 | 87 | 22 | 604 | 964 |
| 87 | 96 | 85 | 400 | 342 |

| 11. | 12. | 13. | 14. | 15. |
|---|---|---|---|---|
| 291 | 799 | 789 | 421 | 780 |
| 380 | 987 | 963 | 604 | 620 |
| 671 | 741 | 258 | 321 | 304 |
| 932 | 825 | 987 | 198 | 708 |
| 421 | 369 | 321 | 720 | 300 |
| 674 | 699 | 471 | 401 | 405 |
| 487 | 852 | 989 | 322 | 706 |
| 204 | 456 | 340 | 780 | 600 |

**Answers**

| | |
|---|---|
| 1. | 297 |
| 2. | 430 |
| 3. | 187 |
| 4. | 693 |
| 5. | 452 |
| 6. | 411 |
| 7. | 403 |
| 8. | 470 |
| 9. | 3,324 |
| 10. | 5,511 |
| 11. | 4,060 |
| 12. | 5,728 |
| 13. | 5,118 |
| 14. | 3,767 |
| 15. | 4,423 |

### Subtotals

| 16. | 17. | 18. | 19. |
|---|---|---|---|
| 251.60 | 591.06 | 72.89 | 9.12 |
| 39.05 | 61.37 | 41.57 | 14.59 |
| 201.55 | 206.15 | 32.20 | 12.98 |
| S | S | S | S |
| 2.31 | 3.21 | -25.80 | - 8.48 |
| 19.58 | 92.57 | 3.21 | -22.64 |
| 237.59 | 19.85 | 10.99 | 1.77 |
| T | T | T | T |

**Answers**

| | | |
|---|---|---|
| 16. | 492.20 | ST |
| | 751.68 | T |
| 17. | 858.58 | ST |
| | 974.21 | T |
| 18. | 146.66 | ST |
| | 135.06 | T |
| 19. | 36.69 | ST |
| | 7.34 | T |

| 20. | 21. |
|---|---|
| 42.23 | 8.94 |
| 71.59 | 13.42 |
| 14.26 | 4.74 |
| S | S |
| - 4.20 | 30.31 |
| 12.30 | -68.77 |
| 1.04 | 4.53 |
| T | T |

**Answers**

| | | | |
|---|---|---|---|
| 20. | 128.08 | ST | |
| | 137.22 | T | |
| 21. | 27.10 | ST | |
| | 6.83 | T | Cr |

## Repeated Numbers

| 22. | 23. | 24. |
|---|---|---|
| 33.68 | 241.59 | 25.06 |
| 33.68 | 241.59 | 25.06 |
| 33.68 | 241.59 | 25.06 |
| 15.05 | 897.81 | 25.06 |
| 15.05 | 897.81 | 15.56 |
| 15.05 | 897.81 | 15.56 |

| 25. | 26. | 27. |
|---|---|---|
| 1,336.96 | 37.65 | 97.05 |
| 1,336.96 | 35.56 | 97.05 |
| 704.68 | 35.56 | 103.53 |
| 704.68 | 35.56 | 103.53 |
| 704.68 | 91.81 | 533.01 |
| 704.68 | 91.81 | 533.01 |

| 28. | 29. | 30. |
|---|---|---|
| 3,243.75 | 10.59 | 3.84 |
| 3,243.75 | 10.59 | 12.76 |
| 3,243.75 | 306.24 | 12.76 |
| 17.19 | 306.24 | 211.33 |
| 17.19 | 306.24 | 211.33 |
| 20.36 | 17.88 | 211.33 |

**Answers**

| | |
|---|---|
| 22. | 146.19 |
| 23. | 3,418.20 |
| 24. | 131.36 |
| 25. | 5,492.64 |
| 26. | 327.95 |
| 27. | 1,467.18 |
| 28. | 9,785.99 |
| 29. | 957.78 |
| 30. | 663.35 |

## Subtraction

1. 33.45<br>
-7.95

2. 21.59<br>
-9.87

3. 5.12<br>
-3.71

4. 54.89<br>
-12.91

5. 891.52<br>
-520.98

6. 200.78<br>
-420.24

7. 352.89<br>
-549.24

8. 635.28<br>
-629.89

9. 489.07<br>
-520.24

10. 2.79<br>
13.87<br>
-35.15<br>
3.18<br>
-20.25<br>
10.91

11. 3.17<br>
9.28<br>
-35.15<br>
3.18<br>
-20.25<br>
10.91

12. 401.35<br>
58.36<br>
-201.05<br>
13.14<br>
- 2.06<br>
8.95

13. 185.04<br>
-70.33<br>
23.15

14. 41.78<br>
-15.19<br>
3.03

15. -30.24<br>
-3.20<br>
10.17

16. 6,701<br>
- 519

17. 3,478<br>
-1,033

18. 4,711<br>
-2,376

19. 374,029<br>
-25,000

20. 4,100,462<br>
-2,400,400

21. 51,763<br>
-19.742

22. 17,299<br>
- 322

23. 701<br>
-799

24. 4,623<br>
-5,000

25. 5,921<br>
-6,735

26. 8,932<br>
-10,725

27. 7,466<br>
-8,220

28. 21,325<br>
-25,384

29. 44,648<br>
-45,205

30. 17.21<br>
-18.50

## Answers

1. 25.50<br>
2. 11.72<br>
3. 1.41<br>
4. 41.98<br>
5. 370.54<br>
6. 219.46 cr.<br>
7. 196.35 cr.<br>
8. 5.39<br>
9. 31.17 cr.<br>
10. 24.65 cr.<br>
11. 28.86 cr.<br>
12. 278.69<br>
13. 137.86<br>
14. 29.62<br>
15. 23.27 cr.

16. 6,182<br>
17. 2,445<br>
18. 2,335<br>
19. 349,029<br>
20. 1,700,062<br>
21. 32,021<br>
22. 16,977<br>
23. 98 Cr.<br>
24. 377 Cr.<br>
25. 814 Cr.<br>
26. 1,793 Cr.<br>
27. 754 Cr.<br>
28. 4,059 Cr.<br>
29. 557 Cr.<br>
30. 1.29 Cr.

## CONSTANTS IN ADDITION

1. 735 + 425 =
927 + 425 =
4316 + 425 =

2. 432 + 333 =
695 + 333 =
1424 + 333 =

3. 998 + 601 =
425 + 601 =
1690 + 601 =

4. 375 + 875 =
432 + 875 =
980 + 875 =

5. 209 + 520 =
1987 + 520 =
1776 + 520 =

6. 472 + 1983 =
931 + 1983 =
475 + 1983 =

7. 4,245 + 7,432 =
3,789 + 7,432 =
7,305 + 7,432 =

8. 7,564 + 809 =
6,332 + 809 =
5,111 + 809 =

9. 809 + 204 =
403 + 204 =
820 + 204 =

10. 5,576 + 4,962 =
3,265 + 4,962 =
7,132 + 4,962 =

11. 4,831 + 202 =
2,410 + 202 =
1,200 + 202 =

12. 9,887 + 488 =
10,446 + 488 =
7,998 + 488 =

## Answers

1. 1,160
1,352
4,741

2. 765
1,028
1,757

3. 1,599
1,026
2,291

4. 1,250
1,307
1,855

5. 729
2,507
2,296

6. 2,455
2,914
2,458

7. 11,677
11,221
14,737

8. 8,373
7,141
5,920

9. 1,013
607
1,024

10. 10,538
8,227
12,094

11. 5,033
2,612
1,402

12. 10,375
10,934
8,486

CONSTANTS IN SUBTRACTION

1. 4,973 - 2,400 =
4,785 - 2,400 =
3,724 - 2,400 =

2. 2,865 - 1,200 =
3,431 - 1,200 =
1,210 - 1,200 =

3. 5,430 - 4,100 =
6,210 - 4,100 =
3,795 - 4,100 =

4. 8,879 - 1,100 =
4,453 - 1,100 =
2,232 - 1,100 =

5. 4,462 - 600 =
2,981 - 600 =
7,840 - 600 =

6. 3,974 - 200 =
1,400 - 200 =
7,098 - 200 =

7. 4,592 - 3,700 =
6,002 - 3,700 =
8,927 - 3,700 =

8. 10,874 - 7,300 =
12,598 - 7,300 =
58,774 - 7,300 =

9. 7,977 - 2,100 =
6,882 - 2,100 =
3,411 - 2,100 =

10. 5,020 - 1,000 =
6,719 - 1,000 =
4,308 - 1,000 =

11. 9,880 - 3,500 =
7,497 - 3,500 =
6,283 - 3,500 =

12. 7,984 - 3,300 =
6,342 - 3,300 =
5,121 - 3,300 =

Answers

1. 2,573
2,385
1,324

2. 1,665
2,231
10

3. 1,330
2,110
305 Cr

4. 7,779
3,353
1,132

5. 3,862
2,381
7,240

6. 3,774
1,200
6,898

7. 892
2,302
5,227

8. 3,574
5,298
51,474

9. 5,877
4,722
1,311

10. 4,020
5,719
3,308

11. 6,380
3,997
2,783

12. 4,684
3,042
1,821

## Multiplication

1. 306 x 214
2. 280 x 314
3. 306 x 78
4. 378 x 514
5. 384 x 8
6. 24 x 11
7. 49 x 275
8. 611 x 304
9. 116 x 214
10. 207 x 304

Be sure to punctuate answers

11. 75 x 201
12. 204 x 703
13. 264 x 504
14. 1607 x 104
15. 3010 x 780
16. 7088 x 614
17. 213 x 780
18. 604 x 247
19. 684 x 814
20. 783 x 204
21. 13 x 19
22. 707 x 304
23. 210 x 784
24. 305 x 187
25. 300 x 687
26. 200 x 500
27. 383 x 215

## Answers

1. 65,484
2. 87,920
3. 23,868
4. 194,292
5. 3,072
6. 264
7. 13,475
8. 185,744
9. 24,824
10. 62,928
11. 15,075
12. 143,412
13. 133,056
14. 167,128
15. 2,347,800
16. 4,352,032
17. 166,140
18. 149,188
19. 556,776
20. 159,732
21. 247
22. 214,928
23. 164,640
24. 57,035
25. 206,100
26. 100,000
27. 82,345

## MULTIPLICATION OF DECIMALS

1. 6.4 x 2.3    2. 2.8 x 6.7

Remember, the sum of the decimals in the multiplier and the multiplicand equals the number of decimal places in the product.

3. 3.4 x 7.04 =    4. 20.5 x 2.175 =

5. 3.81 x 2.76 =    6. 5.06 x 5.04 =

7. 61.3 x 2.83 =    8. 10.75 x 4.35 =

9. 2.04 x 7.13 =    10. 3.88 x 9.36 =

11. 3.4 x 6.3 =    12. 11.18 x 25 =

13. 1.64 x 6.5 =    14. .483 x 96 =

15. 7.5 x 18 =    16. 7.95 x 2.45 =

17. 12.6 x .88 =    18. 21.6 x 2.88 =

19. 2,821 x 3.6 =    20. 18.6 x 95 =

21. 3.04 x 26 =

## Answers

1. 14.72
2. 18.76
3. 23.936
4. 44.5875
5. 10.5156
6. 25.5024
7. 173.479
8. 46.7625
9. 14.5452
10. 36.3168
11. 21.42
12. 279.50
13. 10.660
14. 46.368
15. 135.0
16. 19.4775
17. 11.088
18. 62.208
19. 10155.6
20. 1767.0
21. 79.04

Multiplying Constants

1. 364 x 25
2. 364 x 201
3. 364 x 681
4. 364 x 108
5. 364 x 11
6. 13 x 110
7. 164 x 110
8. 74 x 110
9. 64 x 110
10. 107 x 110
11. 26 yds. at $1.35 per yd.
12. 14 yds. at $1.35 per yd.
13. 74 yds. at $1.35 per yd.
14. 86 yds. at $1.35 per yd.
15. 11 yds. at $1.35 per yd.
16. 106 lbs. at $2.19 per lb.
17. 60 lbs. at $2.19 per lb.
18. 14 lbs. at $2.19 per lb.
19. 18 lbs. at $2.19 per lb.
20. 32 lbs. at $2.19 per lb.
21. 164 pr. at $6.85 pr.
22. 300 pr. at $6.85 pr.
23. 64 pr. at $6.85 pr.
24. 213 pr. at $6.85 pr.
25. 110 pr. at $6.85 pr.
26. 14 hrs. at $1.15 an hr.
27. 20 hrs. at $1.15 an hr.
28. 18 hrs. at $1.15 an hr.
29. 13 hrs. at $1.15 an hr.
30. 24 hrs. at $1.15 an hr.
31. 20 doz. at $.65 a doz.
32. 133 doz. at $.65 a doz.
33. 75 doz. at $.65 a doz.
34. 215 doz. at $.65 a doz.
35. 72 doz. at $.65 a doz.
36. 25 ft. at $.12 per ft.
37. 164 ft. at $.12 per ft.
38. 103 ft. at $.12 per ft.
39. 18 ft. at $.12 per ft.
40. 384 ft. at $.12 per ft.

Answers

1 9,100
2. 73,164
3. 247,884
4. 39,312
5. 4,004
6. 1,430
7. 18,040
8. 8,140
9. 7,040
10. 11,770
11. $ 35.10
12. $ 18.90
13. $ 99.90
14. $ 116.10
15. $ 14.85
16. $ 232.14
17. $ 131.40
18. $ 30.66
19. $ 39.42
20. $ 70.08
21. $1,123.40
22. $2,055.00
23. $ 438.40
24. $1,459.05
25. $ 753.50
26. $ 16.10
27. $ 23.00
28. $ 20.70
29. $ 14.95
30. $ 27.60
31. $ 13.00
32. $ 86.45
33. $ 48.75
34. $ 139.75
35. $ 46.80
36. $ 3.00
37. $ 19.68
38. $ 12.36
39. $ 2.16
40. $ 46.08

|  | Multi-Factor Multiplication |  | Answers |
|---|---|---|---|
| 1. | 3 x 9 x 7 x 13 | 1. | 2,457. |
| 2. | 64 x 12 x 3 x 6 | 2. | 13,824. |
| 3 | 69 x 7 x 2 | 3. | 966. |
| 4 | 13 x 30 x 114 x 2 | 4. | 88,920. |
| 5. | 12 x 20 x 16 x 72 | 5. | 276,480. |
| 6. | 10 x 19 x 36 | 6. | 6,840. |
| 7. | 15 x 7 x 803 | 7. | 84,315. |
| 8. | 83 x 46 x 327 | 8. | 1,248,486. |
| 9. | 413 x 313 x 6 | 9. | 775,614. |
| 10. | 83 x 87 x 53 | 10. | 382,713. |
| 11. | .18 x 2.10 x 1.04 | 11. | .39312 |
| 12. | 1.6 x .55 x .34 | 12. | .2992 |
| 13. | 8.19 x 16. x .40 | 13. | 52.416 |
| 14. | 1.50 x 3 x 8 | 14. | 36. |
| 15. | .19 x 11 x 11.1 | 15. | 23.199 |
| 16 | 3.36 x 5 x .90 | 16. | 15.12 |
| 17. | 65.4 x 25 x 9.21 | 17. | 15,058.35 |
| 18. | 9.85 x 34 x .61 | 18. | 204.289 |
| 19 | 18.2 x 75 x 46.50 | 19. | 63,472.5 |
| 20. | 3.61 x 50 x .37 | 20. | 66.785 |

## Accumulated Multiplication

1 15 x 23
17 x 18
44 x 68

2. 301 x 19
66 x 2
45 x 38

3. 30 x 16
18 x 96
304 x 28

4. 218 x 206
213 x 14
143 x 67

5. 14 x 78
16 x 31
10 x 188

6. 34 x 19
53 x 234
75 x 10

## Accumulative Multiplication with Decimals

Remember to work around fixed decimals on a rotary calculator.

7. .95 x 2.1
16.23 x 2.14
.64 x 3.44

8. 2.14 x 7.18
6.7 x 2.67
20.6 x 3.41

9. 6.77 x 3.05
.30 x .15
1.03 x .05

10. .64 x 3.02
1.825 x 2.6
4.318 x 4.2

11. 2.50 x 30
18.4 x 10.7
8.4 x 29.04

12. 85 x 4
.34 x 3.04
16.14 x 4

13. 1.4 x 16.54
9.7 x 2.134
5.74 x 6.01

14. 6.4 x 3.04
12.3 x 7.84
6.8 x 2.014

15. 34.04 x 78
1.03 x 1.26
63.4 x 14

16. 14.2 x 15.7
2.3 x 1.27
14.83 x 4.02
159.57 x 13.78

17. 22.0 x 21.125
8.5 x 5.365
241.64 x .64
2.34 x 6.07

18. 57.8 x 42.03
2.846 x 47.96
231.03 x 2.314
4.13 x 2.623

19. 15.9 x .6
501.25 x 4.73
14.76 x .8
10.765 x 4.09

20. .8 x .63
2.2 x 3.87
9.10 x 6.20
10.54 x .34

21. 231.3 x .76
3.89 x .333
20.67 x 2.436
125.5 x .77

22. 3.10 x 18.4
16.84 x 104.52
3.644 x 6.4
.422 x .18

23. .1 x .75
3.8 x 2.66
30.9 x .31
4.7 x .25

24. 4.75 x 3.21
7.15 x 4.5
48.3 x .25
9.9 x 4.29

25. 7.58 x 3.21
.95 x .85
24.5 x .15
3.33 x 4.05

26. 7.35 x 8.95
8.5 x 4.22
18.33 x 10.5
4.5 x 4.5

27. 4.95 x .75
6.105 x .2
17.3 x .25
.75 x 8.25

**Answers**

1. 3,643
2. 7,561
3. 10,720
4. 57,471
5. 3,468
6. 13,798
7. 38.9288
8. 103.5002
9. 20.745
10. 24.8134
11. 515.816
12. 405.5936
13. 78.3532
14. 129.5832
15. 3,544.0178
16. 2,484.3522
17. 679.2059
18. 3,111.26457
19. 2,436.28935
20. 69.0216
21. 324.07049
22. 1,840.55436
23. 20.937
24. 101.9685
25. 42.3008
26. 314.3675
27. 15.446

| COMPUTING PERCENTAGE | Answers |
|---|---|
| 1. 5 1/8% of $684.24 = | 1. $ 35.07 |
| 2. 10% of $76 = | 2. $ 7.60 |
| 3. 100% of $666 = | 3. $666.00 |
| 4. 25% of $18.95 = | 4. $ 4.74 |
| 5. 3.4% of $635 = | 5. $ 21.59 |
| 6. 2 1/2% of $321 = | 6. $ 8.03 |
| 7. 10 3/4% of $55.75 = | 7. $ 5.99 |
| 8. 150% of $200 = | 8. $300.00 |
| 9. 5% of $76 = | 9. $ 3.80 |
| 10. 21% of $1500 = | 10. $315.00 |
| 11. 6 1/8% of $340 = | 11. $ 20.83 |
| 12. 22% of $140 = | 12. $ 30.80 |
| 13. .6% of $25 = | 13. $ .15 |
| 14. 11 1/3% of $145 = | 14. $ 16.43 |
| 15. 28% of $800 = | 15. $224.00 |
| 16. 5% of $1,000 = | 16. $ 50.00 |
| 17. 90% of $500 = | 17. $450.00 |
| 18. 22% of $100 = | 18. $ 22.00 |
| 19. 16 2/3% of $80 = | 19. $ 13.33 |
| 20. 33 1/3% of $75 = | 20. $ 25.00 |

| COMPUTING NET AMOUNTS | Answers |
|---|---|
| 1. $475 less 25% = | 1. $ 356.25 |
| 2. $790 less 15% = | 2. $ 671.50 |
| 3. $1,798 less 7% = | 3. $1,672.14 |
| 4. $840 less 35% = | 4. $ 546.00 |
| 5. $2,240 less 25% = | 5. $1,680.00 |
| 6. $546 less 6% = | 6. $ 513.24 |
| 7. $920 less 8% = | 7. $ 846.40 |
| 8. $1,115 less 46% = | 8. $ 602.10 |
| 9. $3,420 less 38% = | 9. $2.120.40 |
| 10. $237.35 less 15% = | 10. $ 201.75 |
| 11. $1,980.25 less 20% = | 11. $1,584.20 |
| 12. $2,340.95 less 35% = | 12. $1,521.62 |
| 13. $495 less 2 1/2% = | 13. $ 482.62 |
| 14. $1,820 less 3/4% = | 14. $1,806.35 |
| 15. $498 less 7 1/2% = | 15. $ 460.65 |
| 16. $375 less 3 3/4% = | 16. $ 360.94 |
| 17. $825 less 1 1/2% = | 17. $ 812.63 |
| 18. $799 less 2 3/4% = | 18. $ 777.03 |
| 19. $775 less 4 1/2% = | 19. $ 740.13 |

| | NEGATIVE MULTIPLICATION | Answers |
|---|---|---|
| 1. | (51 x 6 ) - (15 x 36) = | 234 Cr. |
| 2. | (31 x 64) - (10 x 7 ) = | 1914 |
| 3 | ( 2 x 31) - ( 6 x 8 ) = | 14 |
| 4 | (34 x 11) - (45 x 61) = | 2371 Cr. |
| 5. | (113 x 9 ) - (13 x 5 ) = | 952 |
| 6. | (300 x 15) - (20 x 17) = | 4,160 |
| 7. | (214 x 5 ) - (201 x 6) = | 136 Cr. |
| 8. | ( 83 x 17) - ( 31 x 15) = | 946 |
| 9. | (201 x 84) - (6 x 13) = | 16,806 |
| 10. | (80 x 2) - (11 x 40) = | 280 Cr. |
| 11. | (24 x 6) - (11 x 19) = | 65 Cr. |
| 12. | (22 x 36) - (37 x 7) = | 533 |
| 13. | (30 x 6) - (36 x 5) = | 0 |
| 14. | (140 x 10) - (154 x 3) = | 938 |
| 15. | (700 x 55) - (177 x 8) = | 37,084 |
| 16. | (1005 x 22) - (200 x 60) = | 10,110 |
| 17. | (72 x 39) - (88 x 44) = | 1,064 Cr. |
| 18. | (99 x 40) - (79 x 11) = | 3,091 |
| 19. | (409 x 60) - (304 x 25) = | 16,940 |
| 20. | (66 x 33) - (111 x 33) = | 1,485 Cr. |

| MULTIPLYING FRACTIONS | Answers |
|---|---|
| 1. 1/4 x 6 1/2 = | 1. 1.625 |
| 2. 2 1/8 x 33 1/4 = | 2. 70.65625 |
| 3. 8 3/4 x 7 1/2 = | 3. 65.625 |
| 4. 5 1/5 x 6 3/4 = | 4. 35.1 |
| 5. 33 7/8 x 20 5/8 = | 5. 698.67188 |
| 6. 7 1/12 x 9 1/6 = | 6. 64.93055 |
| 7. 33 1/3 x 66 2/3 = | 7. 2,222.22211 |
| 8. 88 2/3 x 66 1/5 = | 8. 5,869.73355 |
| 9. 10 5/8 x 5 1/6 = | 9. 54.89587 |
| 10. 90 7/8 x 10 5/6 = | 10. 984.47886 |
| 11. 14 1/2 x 16 1/5 = | 11. 234.9 |
| 12. 12 1/4 x 30 3/5 = | 12. 374.85 |
| 13. 1 1/8 x 4 2/5 = | 13. 4.95 |
| 14. 2 5/8 x 3 3/4 = | 14. 9.84375 |
| 15. 66 2/3 x 8 3/8 = | 15. 558.33336 |
| 16. 4 1/2 x 6 1/4 = | 16. 28.125 |
| 17. 19 1/12 x 26 1/6 = | 17. 499.3472 |
| 18. 15 1/5 x 25 3/4 = | 18. 391.4 |
| 19. 60 7/8 x 33 2/3 = | 19. 2,049.45853 |
| 20. 22 1/6 x 11 1/12 = | 20. 245.68052 |
| 21. 119 1/2 x 30 7/8 = | 21. 3,689.5625 |
| 22. 44 3/4 x 82 1/3 = | 22. 3,684.41652 |
| 23. 97 5/6 x 50 3/5 = | 23. 4,950.3665 |
| 24. 55 1/4 x 22 1/2 = | 24. 1,243.125 |

# PERCENTAGE OF INCREASE OF DECREASE

| MONTH | LAST YEAR | THIS YEAR | AMOUNT OF INCREASE OR DECREASE | PERCENTAGE + OR - |
|---|---|---|---|---|
| January | $ 9,810 | $12,310 | $2,500 + | 25.48% + |
| Febraury | 16,310 | 15,437 | 873 - | 5.35% - |
| March | 11,266 | 10,308 | 958 - | 8.50% - |
| April | 20,620 | 16,312 | 4,308 - | 20.89% - |
| May | 23,306 | 22,721 | 585 - | 2.51%- |
| June | 19,207 | 16,375 | 2,832 - | 14.74% - |
| July | 19,111 | 22,470 | 3,359 + | 17.57% + |
| August | 18,025 | 19,207 | 1,182 + | 6.55% + |
| September | 16,312 | 21,918 | 5,606 + | 34.36% + |
| October | 14,704 | 18,109 | 3,405 + | 23.15% + |
| November | 20,304 | 25,231 | 4,927 + | 24.26% + |
| December | 52,972 | 33,741 | 19,231 - | 36.3%- |

## Division

1. 1884 ÷ 36
2. 1400 ÷ 101

Remember to carry all division problems to five decimal places.

3. 452 ÷ 17
4. 1027 ÷ 903
5. 3265 ÷ 99
6. 527 ÷ 18
7. 5409 ÷ 47
8. 3457 ÷ 23
9. 5575 ÷ 24
10. 16,301 ÷ 604
11. 18,542 ÷ 3527
12. 1733 ÷ 21
13. 9243 ÷ 97
14. 5678 ÷ 3064
15. 19,051 ÷ 58
16. 6321 ÷ 9
17. 4789 ÷ 24
18. 62,207 ÷ 345
19. 6586 ÷ 42
20. 17,402 ÷ 705
21. 17,425 ÷ 3427
22. 2844 ÷ 32
23. 9243 ÷ 197
24. 6789 ÷ 3075
25. 17,501 ÷ 85
26. 7432 ÷ 19
27. 4789 ÷ 42
28. 73,318 ÷ 456

## Answers

1. 52.33333
2. 13.86138
3. 26.58823
4. 1.13732
5. 32.97979
6. 29.27777
7. 115.0851
8. 150.30434
9. 232.29166
10. 26.98841
11. 5.25715
12. 82.5238
13. 97.28865
14. 1.85313
15. 328.46551
16. 702.33333
17. 199.54166
18. 180.31014
19. 156.80952
20. 24.68368
21. 5.08462
22. 88.875
23. 46.91878
24. 2.2078
25. 205.89411
26. 391.15789
27. 114.0238
28. 160.78508

## DIVISION WITH DECIMALS

Remember to subtract the number of decimals in divisor from number of decimals in dividend to arrive at number of decimals in quotient.

1. 6,340 ÷ 34.21 =

2. 602.14 ÷ 3.04 =

3. 364.10 ÷ .5 =

4. 3,621.18 ÷ 27.84 =

5. 607.84 ÷ 302.6 =

6. 2,306.5 ÷ 18.4 =

7. 1.256 ÷ .05 =

8. 3.64 ÷ 26 -

9. 863 ÷ .144 =

10. 210 ÷ 24.64 =

11. 8073 ÷ 64 =

12. 31.04 ÷ 7.14 =

If the divisor is larger than the dividend, add as many zeros to the dividend as there are numbers (whole or decimals) in the divisor.

13. 28 ÷ 298.41 =

14. 11 ÷ 40,740 =

15. 200 ÷ 57,640 =

16. 13 ÷ 20.22 =

17. 84 ÷ 766.3 =

18. 21 ÷ 30.55 =

19. 35 ÷ 10.442 =

20. 104 ÷ 172.44 =

21. 15 ÷ 301

22. 155 ÷ 1,432 =

23. 12.44 ÷ 6,121 =

24. 10 ÷ 102 =

25. 41 ÷ 61 =

26. 82 ÷ 50,134 =

## Answers

1. 185.32592
2. 198.07236
3. 728.2
4. 130.07112
5. 2.00872
6. 125.35326
7. 25.12
8. .14
9. 5,993.05555
10. 8.52272
11. 126.14062
12. 4.34733
13. .09383
14. .00027
15. .00346
16. .64292
17. .10961
18. .68739
19. 3.35184
20. .6031
21. .04983
22. .10824
23. .00203
24. .09803
25. .67213
26. .00163

# ELECTRONIC CALCULATOR

# THE ELECTRONIC CALCULATOR

The electronic calculator has modernized the office.

There are many makes and models of electronic calculators. There are also many sizes and styles--some of them are small enough to be carried in your shirt pocket.

Because of its many advantages, the electronic calculator is one of the most popular office machines today.

1. It is noiseless.
2. It is fast.
3. It is moderately priced.
4. It has no moving parts to jam.
5. It is small, compact, and can be moved easily.

[redacted]

The objective is for you to work 95 problems correctly out of 100 in 40 minutes.

The problems will consist of:

1. Addition of whole numbers.
2. Subtraction of whole numbers.
3. Multiplication of whole numbers.
4. Division of whole numbers.
5. Addition of decimals.
6. Subtraction of decimals.
7. Multiplication of decimals.
8. Division of decimals.
9. Multi-factor multiplication.
10. Accumulated multiplication with individual extensions and automatic totals.
11. Negative multiplication.
12. Multiplication of constants.
13. Computation of interests.
14. Calculating discounts and net amounts.
15. Calculating percentages of markup based on cost and selling price.
16. Calculating the markup based on cost and selling price.
17. Calculating the carrying charge and monthly payments.

If you have experience with an electronic calculator, perhaps you would like to take the pretest on the following pages to see if you need further instruction on the electronic calculator.

Time yourself for 40 minutes. Work quickly. If you finish in less than 40 minutes, use the remaining time to check your work. Use the following instructions to work the problems on the pretest, the problems in the workbook, the problems on the sample post test, and the problems on the post test.

1. Round cents off to two decimal places.
2. Round percentages off to two decimal places.
3. Round all products off to five decimal places.
4. Round all quotients off to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in your answers; for example, Cr., %.

IMPORTANT NOTE: Do not spend more than 40 minutes on the pretest. If you cannot work the problems, go through the package.

## PRETEST FOR THE ELECTRONIC CALCULATOR

(1)
74
69
32
16
22

(2)
.4169
3.21
.104
32.1096
34.62

(3)
56,920
-49,621

(4)
18,923
-22,401

(5)
19.42
- 1.067
3.2106
-14.16
4.2

(6) 19 x 45 =

(7) 7.23 x 18.9 =

(8) 17 x 14 x 3 x 7 =

(9) 17.4 x 46.3 x 19.2 =

(10) 49.7 x 6.19 x 14.3 =

(11) (92 x 16) - (14 x 22) =

(12) (24 x 31) - (17 x 102) =

(13) (49 x 14) - (44 x 29) =

(14) 201 doz. at $1.19 =

(15) 49 doz. at $1.19 =

(16) 17 doz. at $1.19 =

(17) 42 doz. at $1.19 =

(18) 433 doz. at $1.19 =

(19) 136 doz. at $1.19 =

(20) 58 doz. at $1.19 =

(21) 17 ÷ 4 =

(22) 95.6 ÷ 14 =

(23) 402 ÷ 1.02 =

(24) 13,709 ÷ 42 =

(25) 748 ÷ 19 =

(26) 197 ÷ 413 =

(27) 408 ÷ 2.36 =

(28) 1,055 ÷ 2.725 =

(29) 14,701 ÷ 19.25 =

(30) 73,201 ÷ 66 =

## INTEREST CALCULATION

| | Amount of Principle | Interest Rate | Period of Time | Amount to be Repaid |
|---|---|---|---|---|
| 31. | 572 | 4 1/2% | 51 days | |
| 32. | 402 | 5% | 60 days | |
| 33. | 2,000 | 5 1/2% | 66 days | |
| 34. | 4,719 | 6% | 90 days | |
| 35. | 14,000 | 4% | 75 days | |
| 36. | 8,975 | 4 1/2% | 20 days | |
| 37. | 3,000 | 5% | 180 days | |
| 38. | 9,000 | 4 3/4% | 60 days | |
| 39. | 10,624 | 7% | 45 days | |
| 40. | 13,905 | 7 1/4% | 100 days | |

|  | QUANTITY | UNIT PRICE | EXTENSION |
|---|---|---|---|
| 41. | 16 | 4.19 |  |
| 42. | 75 | 3.22 |  |
| 43. | 14 | 1.95 |  |
| 44. | 45 | 3.21 |  |
| 45. | 17 | 3.07 |  |
| 46. | 29 | 4.05 |  |
| 47. | 4 | .19 |  |
| 48. | 18 | 7.05 |  |
| 49. | 12 | 4.65 |  |
| 50. | 31 | .75 |  |

51. TOTAL____________________

52. 3% Sales Tax____________________

53. Amount Due____________________

## DISCOUNTS AND NET AMOUNTS

| | Amount | Discount Rate | Amount of Discount | Net Amount |
|---|---|---|---|---|
| 54/55 | 295.00 | 5% | | |
| 56/57 | 320.00 | 4 1/2% | | |
| 58/59 | 425.20 | 10% | | |
| 60/61 | 1,460.00 | 5 3/4% | | |
| 62/63 | 95.00 | 6% | | |
| 64/65 | 198.50 | 7 1/4% | | |
| 66/67 | 619.22 | 12% | | |
| 68/69 | 79.55 | 2% | | |
| 70/71 | 245.29 | 4 1/2% | | |
| 72/73 | 550.00 | 14% | | |

## CALCULATING THE PERCENT OF MARKUP BASED ON COST

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 74. | 15.00 | 20.00 | |
| 75. | 4.95 | 5.20 | |
| 76. | 165.19 | 199.95 | |
| 77. | 196.20 | 215.00 | |
| 78. | 250.00 | 300.00 | |

[redacted]

## CALCULATING THE PERCENT OF MARKUP BASED ON SELLING PRICE

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 79. | $ 29.00 | $ 35.00 | |
| 80. | 45.00 | 49.95 | |
| 81. | 122.00 | 129.95 | |
| 82. | 175.00 | 200.00 | |
| 83. | 217.32 | 314.06 | |

## CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

| | Cost | Markup | Selling Price |
|---|---|---|---|
| 84. | $ 25.00 | 20% | |
| 85. | 17.95 | 18% | |
| 86. | 232.75 | 25% | |
| 87. | 227.82 | 40% | |
| 88. | 39.85 | 12% | |

| | Cash Price | Installment Price | Carrying Charge | Down Payment | Months | Monthly Payment |
|---|---|---|---|---|---|---|
| 89/90 | $500.00 | $550.00 | | $50.00 | 10 | |
| 91/92 | 995.00 | 1200.00 | | 30.00 | 9 | |
| 93/94 | 1200.00 | 1422.00 | | 150.00 | 8 | |
| 95/96 | 795.00 | 900.00 | | 75.00 | 10 | |
| 97/98 | 500.00 | 800.00 | | 200.00 | 6 | |
| 99/100 | 1000.00 | 1500.00 | | 360.00 | 12 | |

ANSWERS TO PRETEST FOR ELECTRONIC CALCULATOR

1. 213
2. 70.4605
3. 7,299
4. 3,478 Cr.
5. 11.6036
6. 855
7. 136.647
8. 4,998
9. 15,467.904
10. 4,399.2949
11. 1,164
12. 990 Cr.
13. 590 Cr.
14. $239.19
15. 58.31
16. 20.23
17. 49.98
18. 515.27
19. 161.84
20. 69.02
21. 4.25
22. 6.82857
23. 394.11765
24. 326.40476
25. 39.36842
26. .477
27. 172.88136
28. 387.15596
29. 763.68831
30. 1,109.10606
31. $575.60
32. 405.30
33. 2,019.89
34. 4,788.82
35. 14,115.07
36. 8,997.13
37. 3,073.97
38. 9,070.27
39. 10,715.69
40. 14,181.20
41. 67.04
42. 241.50
43. 27.30
44. 144.45
45. 52.19
46. 117.45
47. .76
48. 126.90
49. 55.80
50. 23.25
51. 856.64
52. 25.70
53. 882.34
54. $14.75
55. 280.25
56. 14.40
57. 305.60
58. 42.52
59. 382.68
60. 83.95
61. 1,376.05
62. 5.70
63. 89.30
64. 14.39
65. 184.11
66. 74.31
67. 544.91
68. 1.59
69. 77.96
70. 11.04
71. 234.25
72. 77.00
73. 473.00
74. 33.33%
75. 5.05%
76. 21.04%
77. 9.58%
78. 20%
79. 17.14%
80. 9.91%
81. 6.12%
82. 12.5%
83. 30.8%
84. 30.00
85. 21.18
86. 290.94
87. 318.95
88. 44.63
89. $50.00
90. 50.00
91. 205.00
92. 130.00
93. 222.00
94. 159.00
95. 105.00
96. 82.50
97. 300.00
98. 100.00
99. 500.00
100. 95.00

If the pretest indicates that the stated objective has been met, ask me for the post test.

If the pretest indicates that further study and practice would be helpful, select one of the electronic calculators in your classroom and have it in front of you as you view Film No. 11 and listen to Tape No. 11.

This machine should be operated by touch. The middle row is the home row. The first finger controls the 7, 4, and 1; the middle finger controls the 8, 5, and 2; and the ring finger controls the 9, 6, and 3.

The operational keys on the left are operated by the first finger and the operational keys on the right by the little finger.

1. Turn the machine on by switching on the rocker switch at the front side underneath the machine.

2. Clear the machine by depressing the red "C" key.

3. To add, enter the addends as they read, from left to right.

22 tap $\underset{=}{+}$

24 tap $\underset{=}{+}$

16 tap $\underset{=}{+}$

32 tap $\underset{=}{+}$

94 read the total in the display register. Notice that a sub-total is available after each operation.

ADDITION:

| 1. | 2. | 3. | 4. | 5. | 6. |
|---|---|---|---|---|---|
| 44 | 45 | 12 | 78 | 47 | 24 |
| 22 | 56 | 21 | 87 | 65 | 35 |
| 33 | 66 | 31 | 77 | 32 | 79 |
| 55 | 44 | 32 | 88 | 21 | 84 |
| 33 | 54 | 13 | 98 | 89 | 34 |
| 44 | 64 | 23 | 89 | 76 | 27 |
| 22 | 46 | 33 | 97 | 88 | 41 |
| 44 | 55 | 22 | 79 | 34 | 87 |

| 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|
| 19 | 45 | 505 | 990 | 291 | 799 |
| 24 | 32 | 404 | 875 | 380 | 987 |
| 76 | 98 | 504 | 333 | 671 | 741 |
| 44 | 78 | 405 | 782 | 932 | 825 |
| 32 | 67 | 302 | 901 | 421 | 369 |
| 25 | 43 | 200 | 324 | 674 | 699 |
| 87 | 22 | 604 | 964 | 487 | 852 |
| 96 | 85 | 400 | 342 | 204 | 456 |

| 13. | 14. | 15. |
|---|---|---|
| 789 | 421 | 780 |
| 963 | 604 | 620 |
| 258 | 321 | 304 |
| 987 | 198 | 708 |
| 321 | 720 | 300 |
| 471 | 401 | 405 |
| 989 | 322 | 706 |
| 340 | 780 | 600 |

ANSWERS:

1. 297 2. 430 3. 187 4. 693 5. 452

6. 411 7. 403 8. 470 9. 3,324 10. 5,511

11. 4,060 12. 5,728 13. 5,118 14. 3,767 15. 4,423

To set a decimal in the register window, depress the red "C" and the number on the keyboard which represents the number of decimal places desired simultaneously.

For example, to set two decimal places, depress the red "C" and the 2 on the keyboard simultaneously.

The decimal must be entered in the proper order.

24.95
13.16
42.20
80.31

1. Clear the machine.
2. Depress 24 and a decimal (the key with a dot on it next to the zero key) and 95. Tap $\overset{+}{=}$.
3. Follow the same steps for the next two addends.
4. Read the answer in the register window (80.31).

| 16. | 17. | 18. | 19. |
|---|---|---|---|
| 251.60 | 591.06 | 72.89 | 9.12 |
| 39.05 | 61.37 | 41.57 | 14.59 |
| 201.55 | 206.15 | 32.20 | 12.98 |
| S | S | S | S |
| 2.31 | 3.21 | -25.80 | -8.48 |
| 19.58 | 92.57 | 3.21 | -22.64 |
| 237.59 | 19.85 | 10.99 | 1.77 |
| T | T | T | T |

| 20. | 21. |
|---|---|
| 42.23 | 8.94 |
| 71.59 | 13.42 |
| 14.26 | 4.74 |
| S | S |
| -4.20 | 30.31 |
| 12.30 | -68.77 |
| 1.04 | 4.53 |
| T | T |

ANSWERS

| | | |
|---|---|---|
| 16. | 492.20 | ST |
| | 751.68 | T |
| 17. | 858.58 | ST |
| | 974.21 | T |
| 18. | 146.66 | ST |
| | 135.06 | T |
| 19. | 36.69 | ST |
| | 7.34 | T |
| 20. | 128.08 | ST |
| | 137.22 | T |
| 21. | 27.10 | ST |
| | 6.83 | T CR |

SUBTRACTION:

To subtract, depress the $\underset{=}{-}$ for the subtrahend.

$$\begin{array}{r} 14.95 \\ \underline{-2.16} \\ 12.79 \end{array}$$

1. Clear the machine.

2. Enter the minuend 14.95 with the $\underset{=}{+}$

3. Enter the subtrahend 2.16 with the $\underset{=}{-}$

4. Read the difference 12.79 in the register window

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| 33.45 | 21.59 | 5.12 | 54.89 | 891.52 |
| -7.95 | -9.87 | -3.71 | -12.91 | -520.98 |

Notice that a minus sign appears in the register window when the answer is a credit balance.

Be sure to indicate a credit balance with a minus sign, a Cr. or a C. when you record your answer.

| 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|
| 200.78 | 352.89 | 635.28 | 489.07 | 2.79 |
| -420.24 | -549.24 | -629.89 | -520.24 | 13.87 |
| | | | | -35.15 |
| | | | | 3.18 |
| | | | | -20.25 |
| | | | | 10.91 |

| 11. | 12. | 13. | 14. | 15. |
|---|---|---|---|---|
| 3.17 | 401.35 | 185.04 | 41.78 | -30.24 |
| 9.28 | 58.36 | -70.33 | -15.19 | -3.20 |
| -35.15 | -201.05 | 23.15 | 3.03 | 10.17 |
| 3.18 | 13.14 | | | |
| -20.25 | -2.06 | | | |
| 10.91 | 8.95 | | | |

ANSWERS:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1. | 25.50 | 2. | 11.72 | 3. | 1.41 | 4. | 41.98 | 5. | 370.54 |
| 6. | 219.46 cr. | 7. | 196.35 cr. | 8. | 5.39 | 9. | 31.17 cr. | 10. | 24.65 cr. |
| 11. | 28.86 cr. | 12. | 278.69 | 13. | 137.86 | 14. | 29.62 | 15. | 23.27 cr. |

16. 6,701 -519

17. 3,478 -1,033

18. 4,711 -2,736

19. 374,029 -25,000

20. 4,100,462 -2,400,400

21. 51,763 -19,742

22. 17,299 - 322

23. 701 -799

24. 4,623 -5,000

25. 5,921 -6,735

26. 8,932 -10,725

27. 7,466 -8,220

28. 21,325 -25,384

29. 44,648 -45,205

30. 17.21 -18.50

ANSWERS:

16. 6,182
17. 2,445
18. 1975
19. 349,029
20. 1,700,062
21. 32,021
22. 16,977
23. 98 Cr.
24. 377 Cr.
25. 814 Cr.
26. 1,793 Cr.
27. 754 Cr.
28. 4,059Cr.
29. 557 Cr.
30. 1.29 Cr.

To multiply 44 x 32 = 1408

1. Clear the machine
2. Depress 44 into the keyboard
3. Tap the x key
4. Depress 32 into the keyboard
5. Depress the ± key
6. Read the product 1408 in the register dial

MULTIPLICATION:

(1) 306 x 214
(2) 280 x 314
(3) 306 x 78
(4) 378 x 514
(5) 384 x 8
(6) 24 x 11
(7) 49 x 275
(8) 611 x 304
(9) 116 x 214
(10) 207 x 304

Be sure to punctuate answers.

(11) 75 x 201

(12) 204 x 703

(13) 264 x 504

(14) 1607 x 104

(15) 3010 x 780

(16) 7088 x 614

(17) 213 x 780

(18) 604 x 247

(19) 684 x 814

(20) 783 x 204

(21) 13 x 19

(22) 707 x 304

(23) 210 x 784

(24) 305 x 187

(25) 383 x 215

(26) 200 x 500

ANSWERS

(1) 65,484
(2) 87,920
(3) 23,868
(4) 194,292
(5) 3,072
(6) 264
(7) 13,475
(8) 185,744
(9) 24,824
(10) 62,928
(11) 15,075
(12) 143,412
(13) 133,056
(14) 167,128
(15) 2,347,800
(16) 4,352,032
(17) 166,140
(18) 149,188
(19) 556,776
(20) 159,732
(21) 247
(22) 214,928
(23) 164,640
(24) 57,035
(25) 82,345
(26) 100,000

## MULTIPLICATION OF DECIMALS

To multiply decimals

6.3 x 2.34 = 14.742

1. Enter five decimal places into the register window by depressing the red "C" key and the 5 simultaneously.
2. Depress the six, the decimal, and the three into the keyboard.
3. Depress the x key.
4. Depress the 2, the decimal, the three, and the four into the keyboard.
5. Depress the $\underset{=}{+}$ key.
6. Read the product, 14.742, in the register window.
7. It is not necessary to clear the window register before working the next problem.

1. 6.4 x 2.3

2. 2.8 x 6.7

Remember, the sum of the decimals in the multiplier and multiplicand equals the number of decimal places in the product.

3. 3.4 x 7.04 =
4. 20.5 x 2.175 =
5. 3.81 x 2.76 =
6. 5.06 x 5.04 =
7. 61.3 x 2.83 =
8. 10.75 x 4.35 =
9. 2.04 x 7.13 =
10. 3.88 x 9.36 =
11. 3.4 x 6.3 =
12. 11.18 x 25 =
13. 1.64 x 6.5 =
14. .483 x 96 =

ANSWERS

1. 14.72
2. 18.76
3. 23.936
4. 44.5875
5. 10.5156
6. 25.5024
7. 173.479
8. 46.7625

15. 7.5 x 18 =

16. 7.95 x 2.45 =

17. 12.6 x .88 =

18. 21.6 x 2.88 =

19. 2,821 x 3.6 =

20. 18.6 x 95 =

21. 3.04 x 26 =

9. 14.5452

10. 36.3168

11. 21.42

12. 279.50

13. 10.660

14. 46.368

15. 135.0

16. 19.4775

17. 11.088

18. 62.208

19. 10155.6

20. 1767.0

21. 79.04

## MULTIPLYING CONSTANTS

With "K" key locked, the second factor (multiplier, or divisor) and its arithmetic function are retained as a constant.

In the problems - 19 x 24
19 x 41
19 x 32

1. Depress the "K" key into a locked position.
2. Enter the 24 into the keyboard.
3. Depress the x key.
4. Next, enter the 19 in the keyboard because the second factor entered is retained as a constant.
5. Depress the ± key.
6. Read the product (456) in the register window.
7. Enter 41 into the keyboard.
8. Depress the ±.
9. Read the product (779) in the register window.
10. Repeat from No. 7 as many times as necessary

1. 364 x 25 =

2. 364 x 201 =

3. 364 x 681 =

4. 364 x 108 =

5. 364 x 11 =

6. 13 x 110 =

7. 164 x 110 =

8. 74 x 110 =

9. 64 x 110 =

10. 107 x 110 =

11. 26 yds. @ $1.35 per yd.

12. 14 yds. @ $1.35 per yd.

13. 74 yds. @ $1.35 per yd.

14. 86 yds. @ $1.35 per yd.

15. 11 yds. @ $1.35 per yd.

16. 106 lbs. @ $2.19 per lb.

17. 60 lbs. @ $2.19 per lb.

18. 14 lbs. @ $2.19 per lb.

19. 18 lbs. @ $2.19 per lb.

20. 32 lbs. @ $2.19 per lb.

NOTE: REMEMBER TO ENTER THE DECIMAL INTO THE KEYBOARD.

21. 164 pr at $6.85 pr.

22. 300 pr at $6.85 pr.

23. 64 pr at $6.85 pr.

24. 213 pr at $6.85 pr.

25. 110 pr at $6.85 pr.

26. 14 hrs at $1.15 an hr.

27. 20 hrs at $1.15 an hr.

28. 18 hrs at $1.15 an hr.

29. 13 hrs at $1.15 an hr.

30. 24 hrs at $1.15 an hr.

31. 20 doz. at $.65 doz.

32. 133 doz. at $.65 doz.

33. 75 doz. at $.65 doz.

34. 215 doz. at $.65 doz.

35. 72 doz. at $.65 doz.

36. 25 ft. at $.12 per ft.

37. 164 ft. at $.12 per ft.

38. 103 ft. at $.12 per ft.

39. 18 ft. at $.12 per ft.

40. 384 ft. at $.12 per ft.

ANSWERS

1. 9,100
2. 73,164
3. 247,884
4. 39,312
5. 4,004
6. 1,430
7. 18,040
8. 8,140
9. 7,040
10. 11,770
11. $35.10
12. $18.90
13. $99.90
14. $116.10
15. $14.85
16. $232.14
17. $131.40
18. $30.66
19. $39.42
20. $70.08
21. $1,123.40
22. $2,055.00
23. $438.40
24. $1,459.05
25. $753.50
26. $16.10
27. $23.00
28. $20.70
29. $14.95
30. $27.60
31. $13.00
32. $86.45
33. $48.75
34. $139.75
35. $46.80
36. $3.00
37. $19.68
38. $12.36
39. $2.16
40. $46.08

## MULTI-FACTOR MULTIPLICATION

To multiply several factors as in the problem

4 x 8 x 2 x 3 = 192

1. Enter the 4 into the keyboard.
2. Depress the x key.
3. Enter the 8 into the keyboard.
4. Depress the $\overset{+}{=}$ key.
5. Depress the x key.
6. Enter the 2 into the keyboard.
7. Depress the $\overset{+}{=}$ key.
8. Depress the x key.
9. Enter the 3 into the keyboard.
10. Depress the $\overset{+}{=}$ key.
11. Read the product, 192, in the register window.

1. 3 x 9 x 7 x 13 =
2. 64 x 12 x 3 x 6 =
3. 69 x 7 x 2 =
4. 13 x 30 x 114 x 2 =
5. 12 x 20 x 16 x 72 =
6. 10 x 19 x 36 =
7. 15 x 7 x 803 =
8. 83 x 46 x 327 =
9. 413 x 313 x 6 =
10. 83 x 87 x 53 =
11. .18 x 2.10 x 1.04 =
12. 1.6 x .55 x .34 =
13. 8.19 x 16 x .40 =
14. 1.50 x 3 x 8 =
15. .19 x 11 x 11.1 =
16. 3.36 x 5 x .90 =
17. 65.4 x 25 x 9.21 =
18. 9.85 x 34 x .61 =
19. 18.2 x 75 x 46.50 =
20. 3.61 x 50 x .37 =

### ANSWERS

1. 2,457
2. 13,824
3. 966
4. 88,920
5. 276,480
6. 6,840
7. 84,315
8. 1,248,486
9. 775,614
10. 382,713
11. .39312
12. .2992
13. 52.416
14. 36.
15. 23.199
16. 15.12
17. 15,058.35
18. 204.289
19. 63,472.5
20. 66.785

## NEGATIVE MULTIPLICATION

We will use the positive storage key ⊕, the negative storage key ⊖ and the storage recall key ◈ to work these problems.

In the problem (51 x 6) - (15 x 36) =

1. Enter 51 into the keyboard.
2. Depress the x key.
3. Enter 6 into the keyboard.
4. Depress the ⊕ key to store the product in the positive memory. Notice that the green light in the upper left-hand corner came on.
5. Enter 15 into the keyboard.
6. Depress the x key.
7. Enter the 36 into the keyboard.
8. Depress the ⊖ key to store the product in the negative memory.
9. Depress the ◈ key to recall the difference in the two products.
10. Read the answer in the register window. Note the minus sign at the left.
11. Clear the storage by depressing the Ⓒ key in the upper left-hand corner.
12. Note that the green light goes off when the storage is cleared.

---

| | |
|---|---|
| 1. (51 x 6) - (15 x 36) = | 1. 234 Cr. |
| 2. (31 x 64) - (10 x 7) = | 2. 1914 |
| 3. (2 x 31) - (6 x 8) = | 3. 14 |
| 4. (34 x 11) - (45 x 61) = | 4. 2371 Cr. |
| 5. (113 x 9) - (13 x 5) = | 5. 952 |
| 6. (300 x 15) - (20 x 17) = | 6. 4,160 |
| 7. (214 x 5) - (201 x 6) = | 7. 136 Cr. |
| 8. (83 x 17) - (31 x 15) = | 8. 946 |

|  |  |  |  |
|---|---|---|---|
| 9. | (201 x 84) - (6 x 13) = | 9. | 16,806 |
| 10. | (80 x 2) - (11 x 40) = | 10. | 280 Cr. |
| 11. | (24 x 6) - (11 x 19) = | 11. | 65 Cr. |
| 12. | (22 x 36) - (37 x 7) = | 12. | 533 |
| 13. | (30 x 6) - (36 x 5) = | 13. | 0 |
| 14. | (140 x 10) - (154 x 3) = | 14. | 938 |
| 15. | (700 x 55) - (177 x 8) = | 15. | 37,084 |
| 16. | (1005 x 22) - (200 x 60) = | 16. | 10,110 |
| 17. | (72 x 39) - (88 x 44) = | 17. | 1,064 Cr. |
| 18. | (99 x 40) - (79 x 11) = | 18. | 3,091 |
| 19. | (409 x 60) - (304 x 25) = | 19. | 16,940 |
| 20. | (66 x 33) - (111 x 33) = | 20. | 1,485 Cr. |

## DIVISION

Division is very simple to perform on the electronic calculator. In the problem

$$462 \div 15 = 30.8$$

Since we want to round all quotients to five decimal places:

1. Depress the red "C" and the 5 simultaneously to set 5 decimal places in the register window.
2. Depress the 5/4 key which rounds up or off automatically all products and quotients.
3. Enter 462 into the keyboard.
4. Depress the : key.
5. Enter the 15 into the keyboard.
6. Depress the $\underset{=}{+}$ key.
7. Read the quotient, 30.8, in the register window.

---

1. 1884 ÷ 36 =
2. 1400 ÷ 101 =
3. 452 ÷ 17 =
4. 1027 ÷ 903 =
5. 3265 ÷ 99 =
6. 527 ÷ 18 =
7. 5409 ÷ 47 =
8. 3457 ÷ 23 =
9. 5575 ÷ 24 =
10. 16,301 ÷ 604 =
11. 18,542 ÷ 3527 =
12. 1733 ÷ 21 =
13. 9243 ÷ 97 =
14. 5678 ÷ 3064 =
15. 19,051 ÷ 58 =
16. 6321 ÷ 9 =
17. 4789 ÷ 24 =
18. 62,207 ÷ 345 =

19. 6586 ÷ 42 =

20. 17,402 ÷ 705 =

21. 17,425 ÷ 3427 =

22. 2844 ÷ 32 =

23. 9243 ÷ 197 =

24. 6789 ÷ 3075 =

25. 17,501 ÷ 85 =

26. 7432 ÷ 19 =

27. 4789 ÷ 42 =

28. 73,318 ÷ 456 =

ANSWERS

1. 52.33333
2. 13.86139
3. 26.58824
4. 1.13732
5. 32.9798
6. 29.27778
7. 115.0851
8. 150.3043
9. 232.29166
10. [illegible].98841
11. 5.25716
12. 82.5238
13. 95.28866
14. 1.85313
15. 328.46552
16. 702.33333
17. 199.54167
18. 180.31014
19. 156.80952
20. 24.68369
21. 5.08462
22. 88.875
23. 46.91878
24. 2.2078
25. 205.89412
26. 391.15789
27. 114.02381
28. 160.78509

## DIVISION WITH DECIMALS

Remember to include the decimal in proper sequence when the number is entered into the keyboard.

For example in problem one, enter the 6, the 3, the 4, the 0, the decimal, the 6, and the 4 into the keyboard.

Depress the : key.

Enter the 3, the 4, the decimal, the 2, and the 1 into the keyboard.

Depress the $\underset{=}{+}$ key.

1. 6,340.64 ÷ 34.21 =
2. 602.14 ÷ 3.04 =
3. 364.10 ÷ .5 =
4. 3,621.18 ÷ 27.84 =
5. 607.84 ÷ 302.6 =
6. 2,306.5 ÷ 18.4 =
7. 1.256 ÷ .05 =
8. 3.64 ÷ 26 =
9. 863 ÷ .144 =
10. 210 ÷ 24.64 =
11. 8073 ÷ 64 =
12. 31.04 ÷ 7.14 =
13. 28 ÷ 298.41 =
14. 11 ÷ 40,740 =
15. 200 ÷ 57,640 =
16. 12 ÷ 20.22 =
17. 84 ÷ 766.3 =
18. 21 ÷ 30.55 =
19. 35 ÷ 10.442 =
20. 104 ÷ 172.44 =
21. 15 ÷ 301 -
22. 155 ÷ 1,432 =
23. 12.44 ÷ 6,121 =
24. 10 ÷ 102 =
25. 41 ÷ 61 =
26. 82 ÷ 50,134 =

ANSWERS

1. 185.34467
2. 198.07237
3. 728.2
4. 130.07122
5. 2.00872
6. 125.35326
7. 25.12
8. .14
9. 5,993.05556
10. 8.52273
11. 126.14063
12. 4.34734
13. .09383
14. .00027
15. .00347
16. .59347
17. .10962
18. .6874
19. 3.35185
20. .6031
21. .04983
22. .10824
23. .00203
24. .09804
25. .67213
26. .00164

DISCOUNTS AND NET AMOUNTS can be calculated in one step.

In the problem

$292.00 less 5 1/4%

1. Set 2 decimal places and clear the machine.
2. Depress the 5/4 key to round off to 2 decimal places.
3. Enter 292 into the keyboard.
4. Depress ⊕ to enter 292 into the positive memory.
5. Depress the x key.
6. Depress 5.25 into the keyboard.
7. Depress the % key.*
8. Depress ⊖ to enter the discount into the negative memory.
9. Write down the amount of the discount, 15.33.
10. Depress ◇ to recall the amount less the discount, 276.67, as shown in the register window.

*If you do not use the % key, you will have to set 4 decimal places instead of 2 and enter 5 1/2% as .0525 instead of 5.25%.

Work the following problems.

## DISCOUNTS AND NET AMOUNTS

| | | | | | ANSWERS | |
|---|---|---|---|---|---|---|
| | Amount | Discount Rate | Amount of Discount | Net Amount | Amount of Discount | Net Amount |
| 1/2 | $495.00 | 3 3/4% | | | $18.56 | $476.44 |
| 3/4 | 540.00 | 2 1/2% | | | 13.50 | 526.50 |
| 5/6 | 129.48 | 4 1/4% | | | 5.50 | 123.98 |
| 7/8 | 91.35 | 7 1/2% | | | 6.85 | 84.50 |
| 9/10 | 54.50 | 6% | | | 3.27 | 51.23 |
| 11/12 | 291.35 | 8 1/2% | | | 24.76 | 266.59 |
| 13/14 | 33.00 | 3% | | | .99 | 32.01 |
| 15/16 | 899.22 | 2% | | | 17.98 | 881.24 |
| 17/18 | 32.64 | 10% | | | 3.26 | 29.38 |
| 19/20 | 54.30 | 8% | | | 4.34 | 49.96 |
| 21/22 | 280.00 | 7% | | | 19.60 | 260.40 |
| 23/24 | 761.56 | 3% | | | 22.85 | 738.71 |
| 25/26 | 45.00 | 4% | | | 1.80 | 43.20 |
| 27/28 | 3.99 | 10% | | | .40 | 3.59 |
| 29/30 | 43.87 | 6% | | | 2.63 | 41.24 |
| 31/32 | 295.85 | 5 1/2% | | | 16.27 | 279.58 |
| 33/34 | 891.53 | 3 1/4% | | | 28.97 | 862.56 |
| 35/36 | 129.76 | 5 1/4% | | | 6.81 | 122.95 |
| 37/38 | 525.35 | 7 1/2% | | | 39.40 | 485.95 |
| 39/40 | 48.98 | 2% | | | .98 | 48.00 |

TO CALCULATE INTEREST, use the formula --

Principle x rate x time = interest

Principle + interest = Amount to be repaid

This can be done in one operation on the electronic calculator.

In the following problem:

Principle = $550

Rate of interest = 5 1/2%

Time = 60 days

$$550 \times 5\ 1/2\% \times \frac{60}{365} = I$$

1. Set two decimal places and clear the machine.
2. Depress the 5/4 key to round off to 2 decimal places.
3. Enter 550 into the keyboard.
4. Depress $\underset{=}{\oplus}$ to enter 550 into the memory.
5. Depress the x key.
6. Depress 5.5 into the keyboard.
7. Depress the % key.*
8. Depress $\underset{=}{+}$ key.
9. Depress x key.
10. Depress 60 into the keyboard.
11. Depress $\underset{=}{+}$ key.
12. Depress : key.
13. Enter 365 into the keyboard.
14. Depress $\underset{=}{\oplus}$ key to enter the amount of interest into the memory.
15. Depress the ◇ key to recall the principle plus the interest.
16. Read the answer 554.97 in the window register.

---

*If you do not use the % key, you will have to set 4 decimal places instead of 2 and enter 5 1/2% as .055 instead of 5.5%.

REMEMBER TO CLEAR THE MACHINE BEFORE WORKING THE NEXT PROBLEM.

Work the following problems.

| | Amount of Principle | Interest Rate | Period of Time | To be Repaid | ANSWERS |
|---|---|---|---|---|---|
| 1. | $495.75 | 4 3/4% | 90 days | | $501.56 |
| 2. | 795.35 | 6% | 45 days | | 801.23 |
| 3. | 85.00 | 9% | 30 days | | 85.63 |
| 4. | 432.50 | 2 1/2% | 60 days | | 434.28 |
| 5. | 450.75 | 3% | 20 days | | 451.49 |
| 6. | 300.00 | 7% | 15 days | | 300.86 |
| 7. | 238.98 | 6 1/4% | 10 days | | 239.39 |
| 8. | 45.00 | 8% | 10 days | | 45.10 |
| 9. | 999.10 | 10% | 15 days | | 1,003.21 |
| 10. | 75.00 | 3 3/4% | 25 days | | 75.19 |
| 11. | 66.87 | 2 1/2% | 15 days | | 66.94 |
| 12. | 876.00 | 6% | 60 days | | 884.64 |
| 13. | 111.10 | 2% | 30 days | | 111.28 |
| 14. | 50.00 | 5% | 15 days | | 50.10 |
| 15. | 697.00 | 4 1/2% | 90 days | | 704.73 |

TO CALCULATE CARRYING CHARGES AND MONTHLY PAYMENTS:

The problem is:

Cash price = \$150; Installment price = \$185.90; Down payment = \$25.

Determine the carrying charge and the monthly payments over a 10-month period.

1. Clear the machine.
2. Set 2 decimal places.
3. Depress the 5/4 key to round off to 2 decimal places.
4. Enter 185.90 into the keyboard.
5. Depress the $\underset{=}{\oplus}$ key to store 185.90 in the memory.
6. Enter 150 into the keyboard.
7. Depress the $\underset{=}{-}$ key.
8. Depress the ◇ to recall the 185.90.
9. Depress the $\underset{=}{+}$ key.
10. Read the difference, the carrying charge, in the register window--35.90.
11. Enter 25 into the keyboard.
12. Depress the $\underset{=}{\ominus}$ key.
13. Depress the ◇ to recall the difference -- 160.90.
14. Depress the : key.
15. Enter 10 into the keyboard.
16. Depress the $\underset{=}{+}$ key.
17. Read the answer, 16.09, in the register window. 10 payments at 16.09.

So the equation is 185.90 less 150 = carrying charges.

$$\frac{185.90 - 25}{10} = \text{monthly payments}$$

CALCULATING CARRYING CHARGES AND MONTHLY PAYMENTS

| | Cash Price | Installment Price | Carrying Charges | Down Payment | Months | Monthly Payment | Carrying Charges | Monthly Payment |
|---|---|---|---|---|---|---|---|---|
| 1. | 1500.00 | 1695.00 | | 95.00 | 10 | | 195.00 | 160.00 |
| 2. | 1360.00 | 1675.00 | | 307.00 | 12 | | 315.00 | 114.00 |
| 3. | 8570.00 | 12602.00 | | 602.00 | 6 | | 4032.00 | 200.00 |
| 4. | 19429.00 | 21740.00 | | 50.00 | 10 | | 2311.00 | 2169.00 |
| 5. | 577.00 | 865.00 | | 30.00 | 10 | | 288.00 | 83.50 |
| 6. | 1432.00 | 2840.00 | | 100.25 | 15 | | 1408.00 | 182.65 |
| 7. | 1670.00 | 1898.00 | | 98.00 | 12 | | 228.00 | 150.00 |
| 8. | 1300.00 | 1697.00 | | 300.20 | 24 | | 397.00 | 58.20 |
| 9. | 1298.00 | 1476.00 | | 55.20 | 32 | | 178.00 | 44.40 |
| 10. | 200.00 | 500.00 | | 50.00 | 12 | | 300.00 | 37.50 |
| 11. | 5876.00 | 7896.00 | | 264.00 | 24 | | 2020.00 | 318.00 |
| 12. | 750.00 | 955.00 | | 55.00 | 36 | | 205.00 | 25.00 |
| 13. | 500.00 | 1000.00 | | 220.00 | 12 | | 500.00 | 65.00 |
| 14. | 2689.00 | 4588.00 | | 100.00 | 15 | | 1899.00 | 299.20 |
| 15. | 75.00 | 150.00 | | 5.00 | 10 | | 75.00 | 14.50 |

TO CALCULATE THE SELLING PRICE WITH MARKUP BASED ON COST:

The problem is:

Cost = $35; Markup = 15%

1. Clear the machine.
2. Set 2 decimal places and depress the 5/4 key to round off to 2 decimal places.
3. Depress 35 into the keyboard.
4. Depress ⊕ to store 35 into the memory.
5. Depress the x key.
6. Enter 15 into the keyboard.
7. Depress the % key.*
8. Depress ⊕ key to store the markup in the memory.
9. Depress ◇ to recall the cost ($35.00) plus the markup ($5.25).
10. Read the answer, the selling price, in the register window--$40.25.

---

*If you do not use the % key, you will have to set 4 decimal places instead of 2 and enter 15% as .15 instead of 15%.

# CALCULATING THE SELLING PRICE WITH THE MARKUP BASED ON COST

| | Cost | Markup | Selling Price | ANSWERS |
|---|---|---|---|---|
| 1. | $35.00 | 15% | | $40.25 |
| 2. | 2.00 | 10% | | 2.20 |
| 3. | 12.25 | 5% | | 12.86 |
| 4. | 34.87 | 34% | | 46.73 |
| 5. | 25.00 | 25% | | 31.25 |
| 6. | 75.45 | 24% | | 93.56 |
| 7. | 32.65 | 13% | | 36.89 |
| 8. | 3.45 | 20% | | 4.14 |
| 9. | 45.40 | 40% | | 63.70 |
| 10. | 677.88 | 25% | | 847.35 |
| 11. | 479.76 | 10% | | 527.74 |
| 12. | 58.00 | 5% | | 60.90 |
| 13. | 32.87 | 45% | | 47.66 |
| 14. | 861.86 | 50% | | 1292.79 |
| 15. | 65.75 | 3% | | 67.72 |
| 16. | 97.00 | 33% | | 129.01 |
| 17. | 62.98 | 8% | | 68.02 |
| 18. | 57.87 | 43% | | 82.75 |
| 19. | 75.00 | 19% | | 89.25 |
| 20. | 402.00 | 20% | | 482.40 |
| 21. | 55.00 | 7% | | 58.85 |
| 22. | 75.46 | 34% | | 101.12 |
| 23. | 71.98 | 9% | | 78.46 |
| 24. | 43.76 | 23% | | 53.82 |
| 25. | 66.66 | 10% | | 73.33 |

TO CALCULATE THE PERCENT OF MARKUP BASED ON COST:

The problem is:

Cost = $55; Selling Price = $70

1. Clear the machine.
2. Set 2 decimal places.
3. Depress the 5/4 key to round off to 2 decimal places.
4. Enter 70 into the keyboard.
5. Depress $\overset{+}{=}$.
6. Enter 55 into the keyboard.
7. Depress $\overset{-}{=}$.
8. Depress the : key.
9. Depress 55 into the keyboard.
10. Depress the % key.*
11. Depress $\overset{+}{=}$.
12. Read the percentage, 27.27, in the register window.

*Step No. 10 can be omitted if you want your answer in a decimal form (.2727) rather than a percent, but you would have to set 4 decimal places instead of 2.

The equation is $\frac{70 - 55}{55}$

## CALCULATING THE PERCENT OF MARKUP BASED ON COST

| | Cost | Selling Price | Percent of Markup | ANSWERS |
|---|---|---|---|---|
| 1. | $195.65 | $210.75 | | 7.72% |
| 2. | 357.00 | 478.00 | | 33.89% |
| 3. | 197.50 | 275.86 | | 39.68% |
| 4. | 478.87 | 678.88 | | 41.77% |
| 5. | 378.64 | 654.32 | | 72.81% |
| 6. | 234.76 | 453.12 | | 93.01% |
| 7. | 124.34 | 321.32 | | 158.42% |
| 8. | 276.45 | 541.02 | | 95.7% |
| 9. | 609.90 | 765.98 | | 25.59% |
| 10. | 421.34 | 890.10 | | 111.25% |
| 11. | 178.96 | 287.98 | | 60.92% |
| 12. | 743.76 | 867.99 | | 16.7% |
| 13. | 454.54 | 632.43 | | 39.14% |
| 14. | 600.00 | 825.00 | | 37.5% |
| 15. | 321.67 | 846.87 | | 163.27% |
| 16. | 876.32 | 987.65 | | 12.7% |
| 17. | 732.00 | 976.34 | | 33.38% |
| 18. | 375.24 | 942.56 | | 151.19% |
| 19. | 275.25 | 375.50 | | 36.42% |
| 20. | 100.01 | 423.00 | | 322.96% |
| 21. | 258.98 | 300.00 | | 15.84% |
| 22. | 376.98 | 742.87 | | 97.06% |
| 23. | 410.00 | 750.00 | | 82.93% |
| 24. | 864.98 | 900.75 | | 4.14% |
| 25. | 374.75 | 775.75 | | 107% |

## TO CALCULATE THE PERCENT OF MARKUP BASED ON SELLING PRICE

The problem is:

Cost = \$495; Selling Price = \$550

1. Clear the machine.
2. Set 2 decimal places.
3. Depress the 5/4 key to round off to 2 decimal places.
4. Enter 550 into the keyboard.
5. Depress $\underset{=}{+}$.
6. Enter 495 into the keyboard.
7. Depress $\underset{=}{-}$.
8. Depress the : key.
9. Depress 550 into the keyboard.
10. Depress the % key.*
11. Depress $\underset{=}{+}$.
12. Read the percentage, 10, in the register window.

*Step No. 10 can be omitted if you want your answer in a decimal form (.10) rather than a percent, but you would have to set 4 decimal places instead of 2.

The equation is $\frac{550 - 450}{550}$

## CALCULATING THE PERCENT OF MARKUP BASED ON SELLING PRICE

| | Cost | Selling Price | Percent of Markup | ANSWERS |
|---|---|---|---|---|
| 1. | $745.00 | $899.95 | | 17.22% |
| 2. | 567.00 | 789.00 | | 28.14% |
| 3. | 432.50 | 645.00 | | 32.95% |
| 4. | 325.45 | 645.00 | | 49.54% |
| 5. | 234.00 | 345.00 | | 32.17% |
| 6. | 895.00 | 987.00 | | 9.32% |
| 7. | 789.00 | 854.25 | | 7.64% |
| 8. | 325.00 | 400.00 | | 18.75% |
| 9. | 687.00 | 777.77 | | 11.67% |
| 10. | 899.00 | 976.00 | | 7.89% |
| 11. | 743.00 | 798.00 | | 6.89% |
| 12. | 456.00 | 567.50 | | 19.65% |
| 13. | 321.00 | 456.00 | | 29.61% |
| 14. | 145.50 | 234.00 | | 37.82% |
| 15. | 476.00 | 500.00 | | 4.8% |
| 16. | 378.45 | 478.50 | | 20.91% |
| 17. | 589.00 | 678.00 | | 13.13% |
| 18. | 453.00 | 567.00 | | 20.11% |
| 19. | 278.00 | 365.00 | | 23.84% |
| 20. | 890.00 | 999.00 | | 10.91% |
| 21. | 456.75 | 760.00 | | 39.9% |
| 22. | 376.25 | 456.75 | | 17.62% |
| 23. | 586.55 | 675.50 | | 13.17% |
| 24. | 321.25 | 425.50 | | 24.5% |
| 25. | 475.75 | 595.75 | | 20.14% |

# INDIVIDUAL EXTENSIONS AND TOTAL

DIRECTIONS:

1. Multiply each unit price by the quantity and store it in the positive storage by depressing the ⊕ key.
2. Write down the amount.
3. After the last extension depress the storage recall key and multiply the total by 4% to arrive at the amount of tax. Also store the amount of tax in the positive storage.
4. Depress the storage recall to recall the total plus tax.

| | Quantity | Unit Price | Extension | ANSWERS |
|---|---|---|---|---|
| 1. | 16 | 4.28 | | $ 68.48 |
| 2. | 77 | 3.33 | | 256.41 |
| 3. | 14 | 1.99 | | 27.86 |
| 4. | 40 | 3.22 | | 128.80 |
| 5. | 15 | 3.09 | | 46.35 |
| 6. | 25 | 4.27 | | 106.75 |
| 7. | 4 | 1.18 | | 4.72 |
| 8. | 18 | 7.06 | | 127.08 |
| 9. | 12 | 5.66 | | 67.92 |
| 10. | 30 | 10.70 | | 321.00 |
| 11. | 25 | 6.75 | | 168.75 |
| 12. | 19 | 4.86 | | 92.34 |
| 13. | 17 | 3.24 | | 55.08 |

TOTAL 1,471.54

4% Sales Tax 58.86

Amount Due 1,530.40

## INDIVIDUAL EXTENSIONS AND TOTALS

|  | Quantity | Unit Price | Extensions | ANSWERS |
|---|---|---|---|---|
| 1. | 15 | $4.28 |  | $ 64.20 |
| 2. | 75 | 3.33 |  | 249.75 |
| 3. | 15 | 1.99 |  | 29.85 |
| 4. | 45 | 3.22 |  | 144.90 |
| 5. | 16 | 3.09 |  | 49.44 |
| 6. | 24 | 4.27 |  | 102.48 |
| 7. | 14 | 1.18 |  | 16.52 |
| 8. | 24 | 7.06 |  | 169.44 |
| 9. | 15 | 5.66 |  | 84.90 |
| 10. | 33 | 10.70 |  | 353.10 |
| 11. | 22 | 6.75 |  | 148.50 |
| 12. | 40 | 4.86 |  | 194.40 |
| 13. | 16 | 3.24 |  | 51.84 |

TOTAL 1,659.32

4% Sales Tax 66.37

Amount Due 1,725.69

## INDIVIDUAL EXTENSIONS AND TOTALS

| | Quantity | Unit Price | Extensions | ANSWERS |
|---|---|---|---|---|
| 1. | 14 | 4.28 | | $ 59.92 |
| 2. | 74 | 3.33 | | 246.42 |
| 3. | 15 | 1.99 | | 29.85 |
| 4. | 34 | 3.22 | | 109.48 |
| 5. | 11 | 3.09 | | 33.99 |
| 6. | 19 | 4.27 | | 81.13 |
| 7. | 6 | 1.18 | | 7.08 |
| 8. | 18 | 7.06 | | 127.08 |
| 9. | 10 | 5.66 | | 56.60 |
| 10. | 36 | 10.70 | | 385.20 |
| 11. | 24 | 6.75 | | 162.00 |
| 12. | 14 | 3.24 | | 45.36 |
| 13. | 18 | 4.86 | | 87.48 |

TOTAL ______ 1,431.59

4% Sales Tax ______ 57.26

Amount Due ______ 1,488.85

[redacted]

You have had an opportunity to work problems of each kind on the pretest. I suggest that you take the following sample post test to determine whether or not you need additional practice before taking the post test.

[redacted]

## DIRECTIONS FOR SAMPLE POST TEST

## ELECTRONIC CALCULATOR

You will be given 40 minutes. Work quickly. If you finish in less than 40 minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Round percentages off to two decimal places.
3. Round all products off to five decimal places.
4. Round all quotients off or up to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers; for example - Cr., %.

(1)
72
69
30
16
22

(2)
.4170
3.25
.105
32.1096
33.62

(3)
56,810
-49,619

(4)
17,923
-22,301

(5)
19.42
1.066
3.2105
-14.16
4.5

(6) 19 x 44 =

(7) 7.23 x 17.9 =

(8) 16 x 14 x 4 x 7 =

(9) 17.4 x 47.2 x 19.2 =

(10) 49.7 x 6.18 x 14.2 =

(11) (93 x 16) - (14 x 21) =

(12) (23 x 31) - (17 x 101) =

(13) (48 x 14) - (43 x 29) =

(14) 203 doz. at $1.19 =

(15) 46 doz. at $1.19 =

(16) 16 doz. at $1.19 =

(17) 41 doz. at $1.19 =

(18) 431 doz. at $1.19 =

(19) 138 doz. at $1.19 =

(20) 55 doz. at $1.19 =

(21) 18 ÷ 4 =

(22) 96.6 ÷ 14 =

(23) 403 ÷ 1.02 =

(24) 13,709 ÷ 41 =

(25) 746 ÷ 19 =

(26) 195 ÷ 413 =

(27) 408 ÷ 2.35 =

(28) 1,055 ÷ 2.726 =

(29) 14,801 ÷ 19.25 =

(30) 72,202 ÷ 66 =

## INTEREST CALCULATION

| | Amount of Principle | Interest Rate | Period of Time | Amount to be Repaid |
|---|---|---|---|---|
| 31. | 571 | 4 1/2% | 51 days | |
| 32. | 402 | 5% | 70 days | |
| 33. | 3,000 | 5 1/2% | 66 days | |
| 34. | 4,719 | 6% | 80 days | |
| 35. | 14,000 | 4% | 70 days | |
| 36. | 8,975 | 4 1/2% | 30 days | |
| 37. | 4,000 | 5% | 180 days | |
| 38. | 9,000 | 4 1/2% | 60 days | |
| 39. | 10,624 | 8% | 45 days | |
| 40. | 14,905 | 7 1/4% | 100 days | |

[redacted]

|  | Quantity | Unit Price | Extension |
|---|---|---|---|
| 41. | 15 | 4.19 |  |
| 42. | 76 | 3.22 |  |
| 43. | 16 | 1.95 |  |
| 44. | 46 | 3.21 |  |
| 45. | 18 | 3.07 |  |
| 46. | 31 | 4.05 |  |
| 47. | 5 | .19 |  |
| 48. | 19 | 7.05 |  |
| 49. | 14 | 4.65 |  |
| 50. | 32 | .75 |  |

51. TOTAL ______________________________

52. 3% Sales Tax ______________________

53. Amount Due ________________________

[redacted]

## DISCOUNTS AND NET AMOUNTS

| | Amount | Discount Rate | Amount of Discount | Net Amount |
|---|---|---|---|---|
| 54/55 | 290.00 | 5% | | |
| 56/57 | 325.00 | 4 1/2% | | |
| 58/59 | 420.20 | 10% | | |
| 60/61 | 1,470.00 | 5 3/4% | | |
| 62/63 | 90.00 | 6% | | |
| 64/65 | 199.75 | 7 1/4% | | |
| 66/67 | 620.20 | 12% | | |
| 68/69 | 80.55 | 2% | | |
| 70/71 | 240.30 | 4 1/2% | | |
| 72/73 | 560.00 | 14% | | |

## CALCULATING THE PERCENT OF MARKUP BASED ON COST

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 74. | 16.00 | 20.00 | |
| 75. | 5.00 | 5.20 | |
| 76. | 165.20 | 199.95 | |
| 77. | 195.20 | 215.00 | |
| 78. | 255.00 | 300.00 | |

## CALCULATING THE PERCENT OF MARKUP BASED ON SELLING PRICE

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 79. | $ 30.00 | $ 35.00 | |
| 80. | 45.00 | 50.00 | |
| 81. | 123.00 | 129.95 | |
| 82. | 175.00 | 210.00 | |
| 83. | 218.35 | 314.06 | |

## CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

| | Cost | Markup | Selling Price |
|---|---|---|---|
| 84. | $ 26.00 | 20% | |
| 85. | 18.00 | 18% | |
| 86. | 235.75 | 25% | |
| 87. | 228.80 | 40% | |
| 88. | 40.00 | 12% | |

| | Cash Price | Installment Price | Carrying Charge | Down Payment | Months | Monthly Payment |
|---|---|---|---|---|---|---|
| 89/90 | $400.00 | $550.00 | | $50.00 | 10 | |
| 91/92 | 995.00 | 1,110.00 | | 30.00 | 9 | |
| 93/94 | 1,100.00 | 1,422.00 | | 160.00 | 8 | |
| 95/96 | 795.00 | 950.00 | | 75.00 | 10 | |
| 97/98 | 600.00 | 800.00 | | 212.00 | 6 | |
| 99/100 | 1,100.00 | 1,500.00 | | 360.00 | 12 | |

## ANSWERS TO SAMPLE POST TEST

## ELECTRONIC CALCULATOR

1. 209
2. 69.5016
3. 7,191
4. 4,378 Cr.
5. 11.9045
6. 836
7. 129.417
8. 6,272
9. 15,768.576
10. 4,361.4732
11. 1,194
12. 1,004 Cr.
13. 575 Cr.
14. $241.57
15. $54.74
16. $19.04
17. $48.79
18. $512.89
19. $164.22
20. $65.45
21. 4.5
22. 6.9
23. 395.0980
24. 334.36585
25. 39.26316
26. .47215
27. 173.61702
28. 387.01394
29. 768.88312
30. 1,093.967
31. 574.59
32. $405.85
33. $3,029.84
34. $4,781.06
35. $14,107.40
36. $9,008.20
37. $4,098.63
38. $9,066.58
39. $10,728.78
40. $15,201.06
41. $62.85
42. 244.72
43. 31.20
44. 147.66
45. 55.26
46. 125.55
47. .95
48. 133.95
49. 65.10
50. 24.00
51. $891.24
52. 26.74
53. 917.98
54. $14.50
55. 275.50
56. 14.62
57. 310.38
58. 42.02
59. 378.18
60. 84.52
61. 1,385.48
62. 5.40
63. 84.60
64. 14.48
65. 185.27
66. 74.42
67. 545.78
68. 1.61
69. 78.94
70. 10.81
71. 229.49
72. 78.40
73. 481.60
74. 25%
75. 4%
76. 21.04%
77. 10.14%
28. 17.65%
79. 14.29%
80. 10%
81. 5.35%
82. 16.67%
83. 30.48%
84. $31.20
85. 21.24
86. 294.69
87. 320.32
88. 44.80
89. 150.00
90. 50.00
91. 115.00
92. 120.00
93. 322.00
94. 157.75
95. 155.00
96. 87.50
97. 900.00
98. 98.00
99. 400.00
100. 95.00

If the sample post test indicates that you are ready for the post test, please ask me for it. If you feel you need further practice, please work additional problems of the type which gave you difficulty.

Supplementary problems can be found in the back of the workbook.

[redacted]

# TAPE AND FILM INDEX

| Tape No. | Film No. | Subject |
|---|---|---|
| 1 | 1 | Rotary Calculator |
| 2 | 2 | Semi-automatic Monroe Rotary Calculator |
| 3 | 3 | Fully Automatic Monroe Rotary Calculator |
| 4 | 4 | Fully Automatic Friden Rotary Calculator |
| 5 | 5 | Fully Automatic Marchant Rotary Calculator |
| 6 | 6 | Underwood-Olivetti Ten-Key Calculator |
| 7 | 7 | Victor Ten-Key Calculator |
| 8 | 8 | Victor Full Keyboard Adding-Listing |
| 9 | 9 | Victor Ten-Key Adding-Listing |
| 10 | 10 | Burroughs Ten-Key Adding-Listing |
| 11 | 11 | Olympia CD 400 Electronic Calculator |

# APPENDICES

TABLE OF DECIMAL EQUIVALENTS OF COMMON FRACTIONS

| 2nds | 3rds | 4ths | 5ths | 6ths | 7ths | 8ths | 9ths | 10ths | 11ths | 12ths | Equivalents |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |  | 1/12 | .083333 |
|  |  |  |  |  |  |  |  |  | 1/11 |  | .090909 |
|  |  |  |  |  |  |  |  | 1/10 |  |  | .100000 |
|  |  |  |  |  |  |  | 1/9 |  |  |  | .111111 |
|  |  |  |  |  |  | 1/8 |  |  |  |  | .125000 |
|  |  |  |  |  | 1/7 |  |  |  |  |  | .142857 |
|  |  |  |  | 1/6 |  |  |  |  |  | 2/12 | .166667 |
|  |  |  |  |  |  |  |  |  | 2/11 |  | .181818 |
|  |  |  | 1/5 |  |  |  |  | 2/10 |  |  | .200000 |
|  |  |  |  |  |  |  | 2/9 |  |  |  | .222222 |
|  |  | 1/4 |  |  |  | 2/8 |  |  |  | 3/12 | .250000 |
|  |  |  |  |  |  |  |  |  | 3/11 |  | .272727 |
|  |  |  |  |  | 2/7 |  |  |  |  |  | .285715 |
|  |  |  |  |  |  |  |  | 3/10 |  |  | .300000 |
|  | 1/3 |  |  | 2/6 |  |  | 3/9 |  |  | 4/12 | .333333 |
|  |  |  |  |  |  |  |  |  | 4/11 |  | .363636 |
|  |  |  |  |  |  | 3/8 |  |  |  |  | .375000 |
|  |  |  | 2/5 |  |  |  |  | 4/10 |  |  | .400000 |
|  |  |  |  |  |  |  |  |  |  | 5/12 | .416665 |
|  |  |  |  |  | 3/7 |  |  |  |  |  | .428572 |
|  |  |  |  |  |  |  | 4/9 |  |  |  | .444444 |
|  |  |  |  |  |  |  |  |  | 5/11 |  | .454546 |
| 1/2 |  | 2/4 |  | 3/6 |  | 4/8 |  | 5/10 |  | 6/12 | .500000 |
|  |  |  |  |  |  |  |  |  | 6/11 |  | .545455 |
|  |  |  |  |  |  |  | 5/9 |  |  |  | .555556 |
|  |  |  |  |  | 4/7 |  |  |  |  |  | .571429 |
|  |  |  |  |  |  |  |  |  |  | 7/12 | .583331 |
|  |  |  | 3/5 |  |  |  |  | 6/10 |  |  | .600000 |
|  |  |  |  |  |  | 5/8 |  |  |  |  | .625000 |
|  |  |  |  |  |  |  |  |  | 7/11 |  | .636364 |
|  | 2/3 |  |  | 4/6 |  |  | 6/9 |  |  | 8/12 | .666667 |
|  |  |  |  |  |  |  |  | 7/10 |  |  | .700000 |
|  |  |  |  |  | 5/7 |  |  |  |  |  | .714287 |
|  |  |  |  |  |  |  |  |  | 8/11 |  | .727273 |
|  |  | 3/4 |  |  |  | 6/8 |  |  |  | 9/12 | .750000 |
|  |  |  |  |  |  |  | 7/9 |  |  |  | .777778 |
|  |  |  | 4/5 |  |  |  |  | 8/10 |  |  | .800000 |
|  |  |  |  |  |  |  |  |  | 9/11 |  | .818182 |
|  |  |  |  | 5/6 |  |  |  |  |  | 10/12 | .833333 |
|  |  |  |  |  | 6/7 |  |  |  |  |  | .857144 |
|  |  |  |  |  |  | 7/8 |  |  |  |  | .875000 |
|  |  |  |  |  |  |  | 8/9 |  |  |  | .888889 |
|  |  |  |  |  |  |  |  | 9/10 |  |  | .900000 |
|  |  |  |  |  |  |  |  |  | 10/11 |  | .909091 |
|  |  |  |  |  |  |  |  |  |  | 11/12 | .916663 |

RECIPROCALS OF NUMBERS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. | .10000 | 46. | .021739 | 91. | .010989 | 136. | .0073529 |
| 2. | .50000 | 47. | .021277 | 92. | .010870 | 137. | .0072992 |
| 3. | .33333 | 48. | .020833 | 93. | .010753 | 138. | .0072463 |
| 4. | .25000 | 49. | .020408 | 94. | .010638 | 139. | .0071942 |
| 5. | .20000 | 50. | .020000 | 95. | .010526 | 140. | .0071428 |
| 6. | .16667 | 51. | .019608 | 96. | .010417 | 141. | .0070921 |
| 7. | .14286 | 52. | .019231 | 97. | .010309 | 142. | .0070422 |
| 8. | .12500 | 53. | .018868 | 98. | .010204 | 143. | .0069930 |
| 9. | .11111 | 54. | .018519 | 99. | .010101 | 144. | .0069444 |
| 10. | .10000 | 55. | .018182 | 100. | .010000 | 145. | .0068965 |
| 11. | .090909 | 56. | .017857 | 101. | .0099010 | 146. | .0068495 |
| 12. | .083333 | 57. | .017544 | 102. | .0098039 | 147. | .0068027 |
| 13. | .076923 | 58. | .017241 | 103. | .0097087 | 148. | .0067567 |
| 14. | .071429 | 59. | .016949 | 104. | .0096154 | 149. | .0067114 |
| 15. | .066667 | 60. | .016667 | 105. | .0095238 | 150. | .0066666 |
| 16. | .062500 | 61. | .016393 | 106. | .0094340 | 151. | .0066225 |
| 17. | .058824 | 62. | .016129 | 107. | .0093458 | 152. | .0065789 |
| 18. | .055556 | 63. | .015873 | 108. | .0092593 | 153. | .0065359 |
| 19. | .052632 | 64. | .015625 | 109. | .0091743 | 154. | .0064935 |
| 20. | .050000 | 65. | .015385 | 110. | .0090909 | 155. | .0064516 |
| 21. | .047619 | 66. | .015152 | 111. | .0090090 | 156. | .0064103 |
| 22. | .045455 | 67. | .014925 | 112. | .0089286 | 157. | .0063694 |
| 23. | .043478 | 68. | .014706 | 113. | .0088496 | 158. | .0063291 |
| 24. | .041667 | 69. | .014493 | 114. | .0087719 | 159. | .0062893 |
| 25. | .040000 | 70. | .014286 | 115. | .0086957 | 160. | .0062500 |
| 26. | .038462 | 71. | .014085 | 116. | .0086207 | 161. | .0062111 |
| 27. | .037037 | 72. | .013889 | 117. | .0085470 | 162. | .0061728 |
| 28. | .035714 | 73. | .013669 | 118. | .0084746 | 163. | .0061349 |
| 29. | .034483 | 74. | .013514 | 119. | .0084034 | 164. | .0060975 |
| 30. | .033333 | 75. | .013333 | 120. | .0083333 | 165. | .0060606 |
| 31. | .032258 | 76. | .013158 | 121. | .0082645 | 166. | .0060240 |
| 32. | .031250 | 77. | .012987 | 122. | .0081967 | 167. | .0059880 |
| 33. | .030303 | 78. | .012821 | 123. | .0081301 | 168. | .0059523 |
| 34. | .029412 | 79. | .012658 | 124. | .0080645 | 169. | .0059171 |
| 35. | .028571 | 80. | .012500 | 125. | .0080000 | 170. | .0058823 |
| 36. | .027778 | 81. | .012346 | 126. | .0079365 | 171. | .0058479 |
| 37. | .027027 | 82. | .012195 | 127. | .0078740 | 172. | .0058139 |
| 38. | .026316 | 83. | .012048 | 128. | .0078125 | 173. | .0057803 |
| 39. | .025641 | 84. | .011905 | 129. | .0077519 | 174. | .0057471 |
| 40. | .025000 | 85. | .011765 | 130. | .0076923 | 175. | .0057142 |
| 41. | .024390 | 86. | .011628 | 131. | .0076335 | 176. | .0056818 |
| 42. | .023810 | 87. | .011494 | 132. | .0075757 | 177. | .0056497 |
| 43. | .023256 | 88. | .011364 | 133. | .0075187 | 178. | .0056179 |
| 44. | .022727 | 89. | .011236 | 134. | .0074626 | 179. | .0055865 |
| 45. | .022222 | 90. | .011111 | 135. | .0074074 | 180. | .0055555 |

Many of the manuals furnished by the equipment manufacturers will include a chart of reciprocals. That will be a good reference should you need reciprocals of numbers higher than 180.

## CORRECTION OF ERRORS IN THE STUDENT EDITION OFFICE MACHINES WORKBOOK

| | Page | Problem | Correct Answers | Incorrect Answers |
|---|---|---|---|---|
| 10-Key Calculator | 48 | Gas | + 28.35% | + 28.36% |
| Rotary Calculator | 76 | 19 | 81.69 | 81.690 |
| | | 22 | 6,898.753 | 6,898.7530 |
| | 77 | 10 | .55219 | .55218 |
| | | 12 | 359.98862 | 359.98861 |
| | 78 | 9 | 16.73228 | 16.73227 |
| | 79 | 2 | 3,505.78766 | 3,505.78765 |
| | 81 | 7 | 2,590.33402 | 2,590.3334 |
| | | 8 | 351.62496 | 351.625 |
| | | 9 | 32.99967 | 32.89997 |
| | | 10 | 11.87495 | 11.675 |
| | 89 | 5 | 59 | .69 |
| | | 12 | 519.19354 | 680.64516 |
| | 99 | 15 | 1,279,662 | 1,279.662 |
| 10-Key Adding | 109 | 10 | 466,830 | 466.830 |
| | 119 | 23 | 1,066.5 | 5,066.5 |
| Full-Key Adding | 148 | 21 | 40.002 | 40.0002 |
| | | 23 | 4.3329 | 4.3399 |
| Electronic | 211 | 1 | 185.34464 | 185.34467 |
| | | 4 | 130.07112 | 130.07122 |
| | | 20 | .60311 | .6031 |
| | 217 | 3 | $2,000.00 | $200.00 |
| | 219 | 9 | 63.56 | 63.70 |
| | 234 | 5 | 14.0365 | 11.9045 |

| Page | Problem | Correct Answers | Incorrect Answers |
|---|---|---|---|
| Electronic | 23 | 395.09804 | 395.0980 |
|  | 60 | 84.53 | 84.52 |
|  | 61 | 1,385.47 | 1,385.48 |

PLEASE MAKE NOTE OF THESE MISTAKES; AND IF YOU FIND ANY ERRORS NOT NOTED, PLEASE LET US KNOW SO THEY CAN BE CORRECTED.

TBUS 110
(PROGRAMMED) TEACHER EDITION

# OFFICE MACHINES

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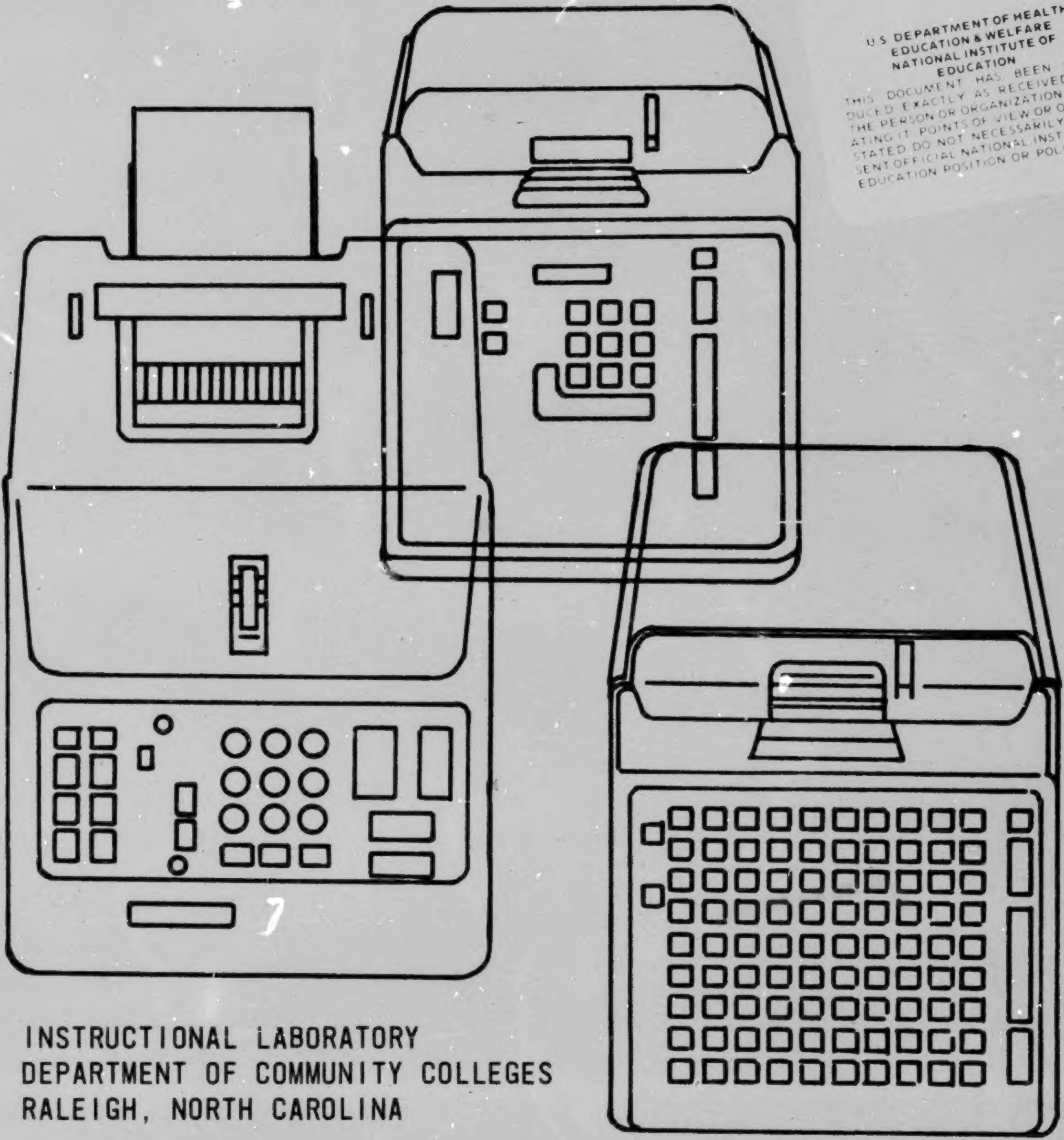

INSTRUCTIONAL LABORATORY
DEPARTMENT OF COMMUNITY COLLEGES
RALEIGH, NORTH CAROLINA

CE003491(6)

Permission to print and distribute the manual to the institutions in the North Carolina Community College System was given by Mrs. Frances Andrews, August 17, 1973.

# BUSINESS MACHINES

## A Self-Instructional Course

by

Frances K. Andrews
Instructor
Central Carolina Technical Institute
Sanford, North Carolina

This programmed office machines text, instructor's manual, and 8mm (with sound) instructional films has been prepared for use in Office Machines (BUS 110). While the material has been copyrighted, permission has been given to the Department of Community Colleges for distribution to North Carolina technical institutes and community colleges.

This programmed office machines course covers the following machines:

*Semi-automatic Monroe rotary calculator
*Fully-automatic Monroe rotary calculator
*Fully-automatic Friden rotary calculator
*Fully-automatic Marchant rotary calculator
*Underwood-Olivetti ten-key calculator
*Victor ten-key calculator
*Victor full keyboard adding-listing
*Victor ten-key adding-listing
*Burroughs ten-key adding-listing
*Olivetti electronic calculator

Films: Twenty-one 8mm instructional films (with sound) have been prepared for use with this text. While only the original copy of the films, currently in use at Central Carolina Technical Institute, are presently available, CCTI will cooperate with other institutions in acquiring copies of these films. Schools interested in using these films are invited to visit CCTI to review the films for possible use in their course. While the films are not required to support the course, they are considered a valuable method of presentation.

Text: Each student text contains a sample pretest for the student who has had prior training on a specific machine, a section of problems and instructions are provided along with the answers at the end of each section, and a sample posttest for practice before taking the final test on that machine.

Instructor's manual: This manual contains instructions on the operation of each machine. It also provides from one to three pretests and posttests with answers to indicate if a student needs further work on a specific machine.

Scripts: Scripts give detailed instructions on the operation of each machine and can be used in addition to the instructional films. If the films are not used in this course, copies of these instructions can be distributed to students for their study.

T-BUS 110
(Programmed)

TEACHER EDITION

# SELF-INSTRUCTIONAL COURSE
# IN
# BUSINESS MACHINES

August 1972

by
Frances K. Andrews
Instructor
Central Carolina Technical Institute

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Raleigh, North Carolina

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# INTRODUCTION

This programmed office machines course covers the following machines:

1. Semi-automatic Monroe rotary calculator
2. Fully-automatic Monroe rotary calculator
3. Fully-automatic Friden rotary calculator
4. Fully-automatic Marchant rotary calculator
5. Underwood-Olivetti ten-key calculator
6. Victor ten-key calculator
7. Victor full-keyboard adding-listing
8. Victor ten-key adding-listing
9. Burroughs ten-key adding-listing
10. Olympia electronic calculator

Instructional films and tapes are available for each of these machines, and the script for each tape and film is included in this manual.

Script No. 1 is an introduction to the rotary calculator, and it demonstrates proper finger techniques and explains the differences in the various rotary calculators.

All the other scripts are instructions for specific machines.

In addition to the scripts, this manual includes at least three post tests on each machine and evaluation sheets.

## Supplies Needed

Timers

Ribbons for replacement

Paper tape for replacement

Manufacturer's manual for each machine

Supplies Needed if Instructional Films are Used

- Timers
- Ribbons for replacement
- Paper tape for replacement
- Manufacturer's manual for each machine
- Poster paper on side walls, on which to show films
- Cart to move machines from place to place
- 10 8mm projectors with sound, or
- 10 Cassette tape players if only the tapes are used, or
- 10 Cassette tape players and 10 8mm projectors without sound
- 10 sets of earphones for the cassette tape players or 8mm projectors with sound

If the films and tapes are not used, it is recommended that the instructor use the first few days of class to discuss very generally the unique characteristics and finger techniques of each machine.

With a good introduction, the student should be able to follow the script and learn how to work all of the problems in the workbook and on the post test, using the manufacturer's manual to locate the machine parts.

Students should be encouraged to write down the answers in the workbook to check the placement of decimals. So often a student will check the answer on the tape with the answer in the workbook without regard for the decimals; and, of course, an answer with an incorrectly placed decimal is a wrong answer.

As with all machines courses, students who are weak in math will need extra help in handling percentages, decimals, and reciprocals. Since the students who have strong math backgrounds or previous experience on these machines can proceed on their own, the instructor has more time to give individual help to the weaker students.

It would be very helpful if a machines lab situation exists whereby a student assistant or para-professional could give and check post tests, further relieving the instructor to give individual help where needed.

Because specific objectives are established, many students will finish early. This is also advantageous since it further frees the instructor to give individual help and allows the student who masters the objective early to spend his time on other courses which are more demanding of him.

Pages 14 through 19 in the workbook explain the grading system, reporting inoperative machines, care of machines, etc.

## ROTARY CALCULATORS
## TAPE NO. 1

Monroe, Friden, and Marchant are manufacturers of most rotary calculators used today. However, there are several different models, all operated basically the same. We will be talking about and working with:

a semi-automatic Monroe

a fully-automatic Monroe

a fully-automatic Friden

a fully-automatic Marchant

These machines are easily recognized. They have:

1. A movable carriage with two sets of "rotating" answer dials--a short set of dials called the counter dial and a long set called the register dial.

2. Dial locks, tab stops, and constant multiplier levers attached to the movable carriage.

3. A series of decimal markers attached to both the counter dial and register dial.

4. A keyboard with 7, 10, or more rows of keys, each of which begins with one at the end of machine nearest the operator and ascends to nine at the opposite end--very similar to a full keyboard.

5. A minus (-) bar, a plus (+) bar, multiplier and division keys, carriage shift bars, and a series of clear and tabular keys.

Some rotary calculators might not have one or more of these features. For example, the semi-automatic Monroe has no multiplier key as multiplication is done by repeated addition and no constant multiplier and tab set key.

Have you noticed that the rotary calculator has no paper tape or ribbon? This is an advantage in that it permits faster operations and relieves the operator of having to change ribbons and of having to put on new tape. It might be a disadvantage if printed records of calculations were needed.

Note the difference in the machine.

On the Monroe machines, the multiplier is set into the keyboard.

On the Marchant, the multiplier is set into the automatic multiplier keys.

On the Friden, the multiplier is set into a special multiplier keyboard.

Problems are solved by depressing keys in columns on the keyboard and depressing the proper bar.

The multiple-key depression technique permits you to depress two or more keys at one time, using your thumb, and first and second fingers to depress the numbers and the third or fourth finger to operate the bars.

The same finger movements are used on all rotary calculators, and these finger movements are:

1. Use the first two fingers to depress two-digit numbers near each other. For example:

    22
    77
    44
    55

    42
    13
    57
    24

    31
    57
    35
    46

2. Use the thumb and first finger when numbers are farther apart.

    25
    52
    36
    63

    17
    81
    61
    19

3. Use the thumb and first or second finger for three-digit numbers, the first or last two of which are the same. Try to read the numbers at a glance without taking a second look.

223
334
442
775

886
477
422
533

4. Use the thumb and first and second fingers to depress three-digit numbers.

234
456
489
831

5. Use two hand motions to depress four-digit numbers.

69.45
35.99
78.31
19.25

6. Use three hand motions to depress five- or six-digit numbers.

478,942
784,376
192,145

Remember: try to read numbers at a quick glance. Avoid splitting numbers into sections for reading.

Now let's review briefly the main characteristics of a rotary calculator.

Try to locate these as I review them, and touch them as I point them out and call them by their proper name.

1. A counter dial and a register dial
2. Movable carriage
3. Decimal markers
4. Carriage shift bars
5. A keyboard with seven or more rows of keys--these rows are sometimes called banks by the manufacturers.

Were you able to identify all these parts of your machine?

Good, you are ready to begin to master a very interesting and exciting machine.

As I point out in this film the four types we have in our class, look for the one on which you will work--the one you have in front of you.

1. Semi-automatic Monroe
2. Fully-automatic Monroe
3. Fully-automatic Friden
4. Fully-automatic Marchant

After you have identified your machine, ask for tape and film on that particular machine. If you have the semi-automatic Monroe, ask for tape No. 2 and film No. 2.

If you have the fully-automatic Monroe, ask for tape No. 3 and film No. 3.

If you have the fully-automatic Friden, ask for tape No. 4 and film No. 4.

If you have the fully-automatic Marchant, ask for tape No. 5 and film No. 5.

# MONROE SEMI-AUTOMATIC ROTARY CALCULATOR
## TAPE NO. 2

## Script for Tape No. 2 to Accompany Film No. 2

This Monroe semi-automatic rotary calculator is very popular because of its small size, its rapidity and accuracy of operation, and its modest cost. It is called semi-automatic because it does not have an automatic multiplier. Multiplication is done by repeated addition, which is really what multiplication is anyway. You might say 3 times 4 equals 12, or you might add three 4's together and get the same answer.

$$3 \times 4 = 12 \quad \text{or} \quad 4 + 4 + 4 = 12$$

As we go through the steps for addition, subtraction, multiplication, and division, work the problems with me on the Monroe semi-automatic rotary calculator.

Addition is the simplest operation, so we shall begin with that.

### Addition

The carriage should be all the way to the left, the normal position for adding. Depress the left shift key. It is the key with an arrow pointing to the left. The extreme right column is for units, the second column from the right for tens, the third column from the right for hundreds, etc.

You may clear all dials and the keyboard by simultaneously depressing the upper dial clear key, the lower dial clear key, and the keyboard clear key, or by depressing the "C" clear key which not only clears both dials and the keyboard but also moves the carriage to the extreme left. Always do this before you begin a problem to make sure the machine is clear.

If numbers from a previous problem are in the machine, they will be added into your new problem. If you want to clear only the keyboard, depress the keyboard clear key. If you want to clear only the upper dial, depress the upper dial clear key. If you want to clear only the lower dial, depress the lower dial clear key.

Disengage the repeat lever (the "R" stands for repeat, and the "nr" stands for non-repeat). This permits keyboard to clear when plus bar is hit.

The add (+) key should be up so that the number of revolutions will be added and read in the counter dial. There is a minus (-) position for negative multiplication, and a neutral position (0) for division.

Depress addends into the keyboard and add them in with the plus bar.

33 - tap plus bar
38 - tap plus bar
224 - tap plus bar
798 - tap plus bar

1,093

Read the answer 1,093 (the sum or total) in the lower dial, the register dial as it is called. The counter dial, the upper dial, counts the number of subtraction and addition revolutions.

We will add numbers that contain decimals. Move the decimal indicators on the keyboard and register dial two decimal places to the left, and we will add.

$ 4.79 - tap plus bar
3.24 - tap plus bar
7.91 - tap plus bar
19.47 - tap plus bar

$35.41

Now, let's add some numbers with more than two decimal places. Suppose some figures have three decimals; some, two; some, four. Let's place our decimal point at a place that will accommodate the largest number of decimal places; that is, four. Always do this when you have a varying amount of decimals. Enter the addends into the keyboard around the decimal.

```
   47.19
   33.214
  194.1
1,643.0017

1,917.5057
```

Verification is obtained by getting the same answer twice since there is no printed tape to check.

Subtraction

To perform simple subtraction, move the carriage all the way to the left. Clear all dials and the keyboard. Disengage repeat lever. The plus (+) key should be up.

Depress the minuend 145 into the keyboard and add it in with the plus bar. Then depress the subtrahend 50 into the keyboard and tap the minus bar. Read the answer in the register dial.

```
145
-50

 95
```

Suppose you want to subtract 450 from 79, clear keyboard and dials, depress the minuend (79) into the keyboard and add it into the machine with the plus bar; depress the subtrahend (450) into the keyboard and subtract it by tapping the minus bar. Read the answer in the register dial. It reads:

9999999999629

That is not the answer. These 9's indicate that a credit answer has been calculated. The 629 preceded by the 9's is the complement of the answer. A complement of a number is the difference between the number and the next higher power of 10, which in this case is 1,000.

To convert the complement into a credit balance:

1. Depress 629 on the keyboard and precede it by as many 9's as are in the keyboard's capacity.
2. Engage the repeat key (up position so that you can see the "r").
3. Tap the minus bar twice.

The answer is 371. Be sure to indicate a credit balance with a minus sign or label them Cr. or credit.

$$\begin{array}{r} 79 \\ \underline{-450} \\ \\ 371 \text{ Cr.} \end{array}$$

Caution: Be sure and disengage repeat key before working further problems.

## Constants in Addition

A fixed figure that is added or subtracted again and again and again to different numbers (called variables) is called constant.

| Constant | + | Variable | = | Sum |
|---|---|---|---|---|
| 7.40 | | 15.25 | | 22.65 |
| 7.40 | | 17.95 | | 25.35 |
| 7.40 | | 21.30 | | 28.70 |

To add constants:

1. Clear machine.
2. Set decimal markers.
3. Enter constant of 7.40 onto keyboard and depress plus bar.

4. Enter variable of 15.25 onto keyboard.

5. Engage repeat key.

6. Depress plus bar.

7. Record sum.

8. Depress minus bar to subtract variable that has been held in keyboard.

9. Clear keyboard.

10. Enter second variable into keyboard and depress plus bar.

11. Record sum.

12. Depress minus bar to subtract variable that has been held in keyboard.

13. Repeat for as many variables as you have.

Constants in Subtraction

| Variable | - | Constant | = Difference |
|---|---|---|---|
| 75.45 | | 17.50 | 57.95 |
| 35.00 | | 17.50 | 17.50 |
| 54.17 | | 17.50 | 36.67 |

To subtract constants:

1. Clear machine and disengage repeat key.

2. Enter constant into keyboard.

3. Depress minus bar.

4. Enter variable into keyboard.

5. Engage repeat key.

6. Depress plus bar.

7. Read and record difference.

8. Depress minus bar to subtract variable that has been held in keyboard.

9. Clear keyboard.

10. Enter second variable into keyboard.

11. Depress plus bar.

12. Read and record difference.

13. Depress minus bar to subtract variable that has been held in keyboard.

14. Repeat for as many variables as you have.

## Multiplication

Since this machine is semi-automatic, we will multiply by the use of repeated addition.

1. Move the carriage all the way to the left and clear keyboard and dials by depressing the "C" key.

2. Engage repeat key and move decimal markers.

3. Add key should be in up position. This counts the revolutions, and the number will be shown in the counter dial.

The problem is 1276 x 743.

1. Depress the multiplicand (743) into the keyboard. Tap the plus bar six times (the first number on the right in the multiplier. This will register in the counter dial.

2. Move the carriage one row position to the right by depressing the tab key pointing in that direction. Now tap the plus bar seven times. Notice that this number also registers in the counter dial.

3. Again move the carriage one row position to the right by depressing the tab key pointing in that direction. Tap the plus bar two times. The two appears in the counter dial.

4. Again move the carriage one row position to the right by depressing the tab key. Tap the plus bar one time.

The product, 948,068, is shown in the register dial.

The multiplier, 1,276, is shown in the counter dial.

The multiplicand is still depressed in the keyboard.

Note: Always punctuate your answers. 948,068 is much easier to read with a comma in it.

## Decimals in Multiplication

Multiplying numbers with decimals is exactly the same as other multiplication except that decimal points must be marked off.

Suppose you wanted to multiply 5.25 by 3. Clear dials and keyboard with "C" key. Depress multiplicand (5.25) into the keyboard, and multiply by 3. You would get an answer of 1,575 or 15.75 when you marked off the decimal places. The number of places marked off is equal to the number of decimal places in the multiplier plus the number of decimal places in the multiplicand.

However, it is much easier to work around fixed decimals so that you will not have to add the number of decimals in the multiplier and in the multiplicand every time you work a problem.

Let me explain:

19.45 x 17.304 =

24.19 x 39.1643 =

45.1076 x 25.3071 =

One of these problems will have 5 decimal places in the product; one, 6; and one, 8. Four is the largest number of decimal places in the multiplier, so let's mark off four places in the counter dial by moving the decimal marker four places to the left. Four is also the largest number of decimals in the multiplicand, so let's mark off four places in the keyboard by uncovering the decimal marker four places to the left. Four decimals in the multiplier plus four decimals in multiplicand equals 8, so let's mark off 8 places in the register dial where the answer appears.

Clear all dials and the keyboard by depressing the "C" key.

1. Depress the multiplicand (17.304) into the keyboard around the decimals. It will appear 17.3040.
2. Multiply around fixed decimals in the counter dial by moving the carriage as is necessary. Notice the arrow pointing to the proper column around the decimal marker. The multiplier appears to be 19.4500.
3. Read the answer in the register dial 336.56280000. Round all answers to five decimal places. In this case, however, the product will contain 4 decimal places, since we drop the zeros.

Multiplying Three Factors

5.77 x 7.4 x 9.2

Multiply the first two factors as you normally would, and it is much easier and faster to work around fixed decimals.

1. Clear all dials and the keyboard by depressing the "C" key.
2. Depress the first factor (5.77) into keyboard around the decimal.
3. Move carriage so that it is in proper position to multiply around decimals.
4. Multiply by the second factor (7.4).
5. Clear keyboard.
6. Depress product of first operation (42.698) into the keyboard around the decimals.
7. Clear upper and lower dials.
8. Multiply by third factor (9.2).
9. Read the product in the register dial (392.8216).

## Accumulated Multiplication

Suppose you wanted the sum of:

$$\begin{array}{lcr} 6 & \times & 1.4 \\ 5 & \times & 15.7 \\ \underline{4.3} & \underline{\times} & \underline{8.7} \end{array}$$

You could find the product of each multiplication and add the three products together to get the sum. But on a rotary calculator, there is an easier way. Let's continue to work around a 4-4-8 fixed decimal program.

1. Clear dials and keyboard.
2. Register dial locks in down position. This keeps the product of the first multiplication in the register dial and adds it to the second and third operation, or as many as you have.
3. Depress the multiplicand (1.4) into the keyboard around the decimals.
4. Move the carriage to the proper position to multiply around the decimals and multiply by 6.
5. Depress the "C" key to clear. Notice that the product (8.4) remains in the register dial.
6. Depress the second multiplicand (15.7) into the keyboard around the decimals.
7. Move the carriage to the proper position to multiply around fixed decimals and multiply by 5.
8. Depress the "C" key to clear. Again, notice that the sum of the first two products (86.9) remains in the register dial.
9. Depress the third multiplicand (8.7) into the keyboard around the decimals.
10. Move the carriage to proper position to multiply around decimals and multiply.
11. Read the answer (124.31) in the register dial.
12. Register dial lock should be moved to up position to clear register dial.

## Dial Locks

We have three locks:

1. The top one locks the upper dial.
2. The left lower one locks the left side of the lower dial.
3. The right lower one locks the right side of the lower dial.

## Negative Multiplication

Negative multiplication is repeated subtraction, the same as positive multiplication is repeated addition.

Here again, it is better to use preset decimals if possible.

$150 less 25%, less 10%, less 5%

1. The add key (+) at zero (neutral) position.
2. Register dial lock in down position.
3. Engage repeat key.
4. Depress 150 onto keyboard around the decimals.
5. Multiply by 1 to get $150 into the register dial.
6. The add (+) key at minus (-) position.
7. Multiply negatively by .25 by hitting the minus bar.
8. Clear with the "C" key.
9. Depress product shown in the register dial (112.5) onto the keyboard around decimals.
10. Multiply negatively by .1 by hitting the minus bar.
11. Clear with the "C" key.
12. Depress product (101.25) as shown in register dial onto keyboard around the decimals.

13. Multiply negatively by .05.

14. Read the answer in the register dial 96.1875 rounded off to 96.19.

15. Unlock the register dial and clear with the "C" key.

## Division

The dividend can be depressed into the keyboard at three different places: at the extreme right of machine, at extreme left of machine, or around fixed decimals.

## Dividing at the Extreme Right of the Keyboard

126 ÷ 5

1. Move carriage to extreme left by depressing the shift key with the arrow pointing to the left.
2. Disengage the repeat key.
3. The add key at zero (0) or neutral position.
4. Depress the dividend (126) into the keyboard at extreme right.
5. Tap plus bar.
6. Depress divisor into the keyboard with the first digit of the divisor aligned with the first digit of the dividend in the register dial. This is done by moving the carriage.
7. Tap the divide equal key.
8. The quotient (25) appears in the counter dial, with the remainder of 1 shown in the register dial.

Note: This is the only way to get an answer with a remainder; otherwise, the answer in the counter dial will show as many decimal places as the counter dial will accommodate.

## Dividing at the Extreme Left of the Keyboard

1. Move the carriage to extreme right by depressing the shift key with the arrow pointing to the right.
2. Clear dials from previous operation.
3. Depress dividend (126) into extreme left of keyboard.
4. Tap enter dividend key.
5. Depress divisor into keyboard with first digit in divisor aligned with the first digit of dividend in register dial.
6. Depress divide equal key.
7. The quotient is 25.2 as read in the counter dial.

Let's work the problem again, paying attention to the decimals.

1. Notice that you do not have to clear the dials because they clear automatically when the dividend is entered with the enter dividend key instead of the plus bar.
2. Depress dividend (126) into keyboard at extreme left.
3. Tap enter dividend key. The "enter dividend" key clears counter dial and moves carriage to extreme right at the same time.
4. Notice the register dial; the 126 appears with 12 zeros after it, so we can assume that these are decimal places. Move the decimal marker so that it reads 126.000000000000.
5. Next depress the divisor into the keyboard with the first digit in divisor directly under the first digit in dividend. There are 7 keys after the 5 on the keyboard, so we can assume, even though the zeros are not depressed that the divisor is 5.0000000, or 7 decimal places. Uncover the decimal so that the keyboard reads 5.0000000. Subtract the number of decimal places in the divisor (7) from the number of decimal places in the dividend (12) to see how many decimal places will appear in the quotient--5. Move the decimal marker in the upper dial five places from the right.
6. Tap divide equal key.
7. Read the answer in counter dial--25.2 (decimal point being 5 places from the right).

## Dividing Around Fixed Decimals

The number of decimals in the register dial minus the number of decimals in the keyboard equals the number of decimals in counter dial where quotient is read.

1. The first step in dividing around fixed decimals is to decide on a program, using the formula just stated, such as

| | | |
|---|---|---|
| 4 decimals in the keyboard | | 4 decimals in the keyboard |
| 4 decimals in the counter dial | or | 5 decimals in the counter dial |
| 8 decimals in the register dial | | 9 decimals in the register dial |

2. Clear all dials and keyboard.
3. Depress the dividend 126 into the keyboard around decimals.
4. Move carriage using the shift key so that the decimal in keyboard is aligned with decimal in the register dial.
5. Tap plus bar.
6. Depress divisor (5) into keyboard around decimals.
7. Tap divide equal key.
8. Read quotient in counter dial--25.2.

The advantage of dividing around fixed decimals is that you do not have to subtract the decimal places on the keyboard (divisor) from the decimal places in the register dial (dividend) to know how many decimal places are in the counter dial (quotient).

The disadvantage is that you will have to enter the dividend with the plus bar and clear counter dial before you work the next problem because this semi-automatic Monroe rotary has no tab set key as the fully automatic rotary calculators have. The tab is permanently set in one position. You would be limited to the following programs:

DECIMAL PROGRAMS

| Register | | Counter | | Keyboard |
|---|---|---|---|---|
| 11 | - | 7 | = | 4 |
| 10 | - | 7 | = | 3 |
| 9 | - | 7 | = | 2 |
| 8 | - | 7 | = | 1 |

In each of these combinations, you would have only one whole number and 7 decimal places in the counter dial; and if the quotient has more than one whole number, this is inadequate.

For example, divide 126 by 5.

1. Depress dividend into the keyboard.

2. Depress the enter dividend key.

3. Depress divisor into the keyboard.

4. Depress the divide equal key.

5. Read the quotient in the counter dial.

The counter dial shows 5.2, and the correct answer is 25.2.

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the rotary calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

[redacted]

# MONROE AUTOMATIC ROTARY CALCULATOR
## TAPE NO. 3

## Script for Tape No. 3 to Accompany Film No. 3

This Monroe automatic rotary calculator is very popular because of its small size, its rapidity and accuracy of operation, and its modest cost. It is called automatic because it divides and multiplies automatically.

As we go through the steps for addition, subtraction, multiplication, and division, work the problems with me on the Monroe automatic rotary calculator.

Addition is the simplest operation, so we shall begin with that.

### Addition

The carriage should be all the way to the left, the normal position for adding. Depress the left shift key. It is the key with an arrow pointing to the left. The extreme right column is for units, the second column from the right for tens, the third column from the right for hundreds, etc.

You may clear all dials and the keyboard by simultaneously depressing the upper dial clear key, the lower dial clear key, and the keyboard clear key, or by depressing the clear multiplier key which not only clears both dials and the keyboard but also moves the carriage to the extreme right or left. Always do this before you begin a problem to make sure the machine is clear. If numbers from a previous problem are in the machine, they will be added into your new problem. If you want to clear only the keyboard, depress the keyboard clear key. If you want to clear only the upper dial, depress the upper dial clear key. If you want to clear only the lower dial, depress the lower dial clear key.

Disengage the repeat lever (the "r" stands for repeat). This permits keyboard to clear when plus bar is hit. The non-entry multiplier control should be down so that the number of revolutions will be added and read in the counter dial, and the change lever should be at X position.

Depress addends into the keyboard and add them in with the plus bar.

33 - tap plus bar
38 - tap plus bar
224 - tap plus bar
798 - tap plus bar

1,093

Read the answer 1,093 (the sum or total) in the lower dial, the register dial as it is called. The counter dial, the upper dial, counts the number of subtraction and addition revolutions.

Now we will add numbers that contain decimals. Move the decimal indicators on the keyboard and register dial two decimal places to the left, and we will add:

Clear all dials and keyboard.

$ 4.79 - tap plus bar
3.24 - tap plus bar
7.91 - tap plus bar
19.47 - tap plus bar

$35.41

Read the sum $35.41 in the register dial.

Now, let's add some numbers with more than two decimal places.

Suppose some figures have three decimals; some, two; some, four. Let's place our decimal point at a place that will accommodate the largest number of decimal places; that is four. Always do this when you have a varying amount of decimals.

1. Clear all dials and keyboard.
2. Enter addends around decimal points.

```
     47.19
     33.214
    194.1
  1,643.0017
  ----------
  1,917.5057
```

Verification is obtained by getting the same answer twice since there is no printed tape to check.

## Subtraction

To perform simple subtraction, move the carriage all the way to the left. Clear all dials and keyboard. Disengage repeat lever. The non-entry multiplier control should be down.

Move decimal markers.

Depress the minuend 145 into the keyboard and add it in with the plus bar. Then depress the subtrahend 50 into the keyboard and tap the minus bar. Read the answer in the register dial.

```
 145
 -50
 ---
  95
```

Suppose you want to subtract 450 from 79. Clear keyboard and dials, depress the minuend (79) into the keyboard and add it into the machine with the plus bar; depress the subtrahend (450) into the keyboard and subtract it by tapping the minus bar. Read the register dial. It reads:

9999999999629

This is not the answer. These 9's indicate that a credit answer has been calculated. The 629 preceded by the 9's is the complement of the answer. A complement of a number is the difference between the number and the next higher power of 10, which in this case is 1,000.

To convert the complement into a credit balance:

1. Depress 629 on the keyboard and precede it by as many 9's as are in the keyboard's capacity.
2. Depress the repeat key.
3. Tap the minus bar twice.

The answer is 371. Be sure to indicate a credit balance with a minus sign or label them Cr. or credit.

$$\begin{array}{r} 79 \\ \underline{-450} \\ 371 \text{ Cr.} \end{array}$$

Caution: Be sure and disengage repeat key before working further problems.

Constants in Addition

A fixed figure that is added or subtracted again and again to different numbers (called variables) is called a constant.

| Constant | + | Variable | = | Sum |
|---|---|---|---|---|
| 7.40 | | 15.25 | | 22.65 |
| 7.40 | | 17.95 | | 25.35 |
| 7.40 | | 21.30 | | 28.70 |

To add constants:

1. Clear machine.
2. Set decimal markers.

3. Enter constant of 7.40 onto keyboard and depress plus bar.

4. Enter variable of 15.25 onto keyboard.

5. Engage repeat key.

6. Depress plus bar.

7. Record sum.

8. Depress minus bar to subtract variable that has been held in keyboard.

9. Clear keyboard.

10. Enter second variable into keyboard and depress plus bar.

11. Record sum.

12. Depress minus bar to subtract variable that has been held in keyboard.

13. Repeat for as many variables as you have.

Constants in Subtraction

| Variable | - | Constant | = | Difference |
|---|---|---|---|---|
| 75.45 | | 17.50 | | 57.95 |
| 35.00 | | 17.50 | | 17.50 |
| 54.17 | | 17.50 | | 36.67 |

To subtract constants:

1. Clear machine and disengage repeat key.

2. Enter constant into keyboard.

3. Depress minus bar.

4. Enter variable into keyboard.

5. Engage repeat key.

6. Depress plus bar.

7. Read and record difference.

8. Depress minus bar to subtract variable that has been held in keyboard.

9. Clear keyboard.

10. Enter second variable into keyboard.

11. Depress plus bar.

12. Read and record difference.

13. Depress minus bar to subtract variable that has been held in keyboard.

14. Repeat for as many variables as you have.

## Multiplication

Multiplication can be automatic or semi-automatic. To perform semi-automatic multiplication:

1. Move the carriage all the way to the left by depressing the shift key with an arrow pointing in that direction and clear the keyboard and dials.

2. Non-entry multiplier control should be in down position, and change lever should be at X position.

3. Engage repeat key.

The problem is 1276 x 743.

1. Depress the multiplicand (743) into the keyboard. Tap the plus bar six times (the first number on the right in the multiplier.) This will register in the counter dial.

2. Move the carriage one row position to the right by depressing the tab key pointing in that direction. Now tap the plus bar seven times. Notice that this number also registers in the counter dial.

3. Again move the carriage one row position to the right by depressing the tab pointing in that direction. Tap the plus bar two times. The two appears in the counter dial.

4. Again move the carriage one row position to the right by depressing the tab key. Tap the plus bar one time.

The product, 948,068, is shown in the register dial.

The multiplier, 1276, is shown in the counter dial.

The multiplicand is still depressed in the keyboard.

Note: Always punctuate your answers. 948,068 is much easier to read with a comma in it.

## Automatic Multiplication

1. Clear keyboard and dials.
2. Move carriage to extreme left.
3. Non-entry multiplier control should be in down position.
4. Enter multiplicand 743 into keyboard.
5. Depress enter multiplicand key. (Notice that the multiplicand is shown in the multiplicand dial.)
6. Enter multiplier 1276 in the keyboard.
7. Depress clear multiplier.
8. Read the product 948,068 in the middle dial.
9. The multiplicand is now shown in the upper dial.

Since this calculator is automatic, let's multiply by this last method. I wanted to show you how to multiply by the first method in case you should have access to only a semi-automatic calculator.

## Decimals in Multiplication

Suppose you wanted to multiply 5.25 by 3.

1. Depress multiplicand 5.25 into the keyboard.
2. Tap enter multiplicand key.
3. Depress multiplier into keyboard.
4. Tap clear multiplier key.

5. Notice that it was not necessary to clear the dials after the last operation because they are cleared automatically by the clear multiplier key.

6. Read the product 1,575 in the register dial. The number of places marked off is equal to the number of places in the multiplier plus the number of decimal places in the multiplicand. So, the answer is 15.75.

However, it is much easier to work around fixed decimals so that you will not have to add the number of decimals in the multiplier and in the multiplicand every time you work a problem.

Let me explain:

19.45     17.304 =
24.19     39.1643 =
45.1076 x 25.3071 =

One of these problems will have 5 decimal places in the product; one, 6; and one, 8. Four is the largest number of decimals in any multiplier, so let's mark off four places in the counter dial by moving the decimal marker four places to the left. Four is also the largest number of decimals in any multiplicand, so let's mark off four places in the keyboard by uncovering the decimal marker four places to the left. Four decimals in the multiplier plus four decimals in multiplicand equals 8; so let's mark off 8 places in the register dial where the answer appears.

In other words, number of decimals in keyboard plus number of decimals in upper dial equals number of decimals in register dial.

1. Depress the multiplicand (17.304) into the keyboard around the decimals. It will appear to be 17.3040.

2. Tap the enter multiplicand key.

3. Depress the multiplier (19.45) into the keyboard around the decimals. It will appear to be 19.4500.

4. Tap the clear multiplier key.

5. Read the product in the register dial--336.56280000. Round all answers to 5 decimal places. In this case, however, the product will contain 4 decimal places, since we drop zeros.

## Multiplying Three Factors

5.77 x 7.4 x 9.2

1. Multiply the first two factors as you normally would, and it is much easier and faster to continue to work around the fixed decimal program of 4-4-8.
2. Depress the first factor (5.77) into the keyboard around the decimals.
3. Tap enter multiplicand key.
4. Depress second factor (7.4) into the keyboard around the decimals.
5. Tap clear multiplier key.
6. Depress product of first operation (42.698) into the keyboard around the decimal.
7. Tap enter multiplicand key.
8. Multiply by third factor (9.2).
9. Read the product in the register dial (392.8216).

## Accumulated Multiplication

Suppose you wanted the sum of:

6 x 1.4
5 x 15.7
4.3 x 8.7

You could find the product of each multiplication and add the three products together to get the sum. But on a rotary calculator, there is an easier way. Let's continue to work around the fixed decimal program of 4-4-8.

1. Clear dials and keyboards.
2. Accumulative multiplier lever in up position.
3. Depress the multiplicand (1.4) into the keyboard around the decimals.
4. Tap enter multiplicand key.
5. Depress the multiplier (6) into keyboard around the decimals.
6. Tap clear multiplier key.
7. Depress second multiplicand (15.7) into keyboard around the decimals.
8. Tap enter multiplicand key.
9. Depress the multiplier (5) into keyboard around the decimals.
10. Tap clear multiplier key.
11. Notice that the sum of the first two products (86.9) remains in the register dial.
12. Depress the third multiplicand (8.7) into the keyboard around the decimals.
13. Tap enter multiplicand key.
14. Depress multiplier (4.3) into keyboard around the decimals.
15. Tap clear multiplier key.
16. Read the answer in the register dial (124.31).
17. Accumulative multiply lever should be disengaged (down position).

### Negative Multiplication

Negative multiplication is repeated subtraction, the same as positive multiplication is repeated addition. It is very helpful when net amounts are desired or when figuring chain discounts.

The negative multiply key can be used only when the carriage is in first position; that is, moved to extreme left.

1. Let's set a tab (much the same as setting a tab on a typewriter) so that the carriage will automatically stop in the right position; that is, tab number 5.

2. Move the carriage right by depressing the carriage shift key pointing in that direction. The decimal in the register dial will be over the decimal in the keyboard if the correct tab has been set.

3. Clear the keyboard and dials.

PROBLEM is $150 less 25%, less 10%, less 5%.

4. Enter 150 on the keyboard around the decimals.

5. Engage the repeat key.

6. Tap plus bar. (This enters the amount in the register dial so that the percentage of discount can be subtracted from it.)

7. Tap enter multiplicand key.

8. Depress .25 into keyboard around decimals.

9. Depress negative multiplier key.

10. Depress product shown in the register dial (112.5) into the keyboard.

11. Tap enter multiplicand key.

12. Depress .1 onto the keyboard around decimals.

13. Tap negative multiplier key.

14. Depress product shown in the register dial (101.25) onto the keyboard.

15. Tap enter multiplicand key.

16. Depress .05 onto keyboard.

18. Tap negative multiplier key.

19. Read the answer in the register dial (96.1875 rounded off to 96.19).

Note: Only a decimal program of 4-4-8 will work for negative multiplication.

## Division

The dividend can be depressed into the keyboard at three different places; at the extreme right of machine, at extreme left of machine, or around fixed decimals.

Division is best done around fixed decimal points so that quotients will be carried out as many decimal places as desired.

The number of decimals in the register dial minus the number of decimals in the keyboard equals the number of decimals in the counter dial where quotient is read.

The first step in dividing around fixed decimals is to decide on a program, using the formula just stated, such as

| | | |
|---|---|---|
| 4 decimals in the keyboard | | 4 decimals in the keyboard |
| 4 decimals in the counter dial | or | 5 decimals in the counter dial |
| 8 decimals in the register dial | | 9 decimals in the register dial |

The problem is 126 ÷ 5.

1. Set decimal places.

2. Set tab so that carriage will automatically stop in proper position.

3. Clear all dials and keyboard and move the carriage to the extreme left by depressing the shift key with the arrow pointing in that direction.

4. Enter dividend (126) on keyboard around decimals.

5. Depress enter dividend tab. If the tab has been set correctly, the decimal in the register dial will be above the decimal in the keyboard.

6. Enter divisor (5) on keyboard around decimals.

7. Tap divide key.

8. Read quotient in counter dial--25.2.

To express a quotient as a whole number with a remainder, divide at the extreme right of the keyboard.

126 ÷ 5 =

1. Move carriage to extreme left by depressing the shift key with the arrow pointing in that direction.

2. Depress the dividend (126) into the keyboard at the extreme right.

3. Tap plus bar.

4. Clear upper dial.

5. Depress divisor into the keyboard with the first digit of the divisor aligned with the first digit of the dividend. This is done by moving the carriage.

6. Tap divide key.

7. The quotient (25) appears in the counter dial, with the remainder of 1 shown in the register dial.

Note: This is the only way to get an answer with a remainder; otherwise, the answer in the counter dial will show as many decimal places as the counter dial will accommodate.

## To Divide at the Extreme Left of the Keyboard

1. Clear dials from previous operation and release tab set.

2. Move the carriage to extreme right by depressing the shift key with the arrow pointing in that direction.

3. Depress dividend (126) into extreme left of keyboard.

4. Tap enter dividend key.

5. Depress divisor into keyboard with first digit in divisor aligned with the first digit of dividend in register dial.

6. Depress divide key.

7. The quotient is 25.2 as read in counter dial.

Let's work the problem again, paying attention to the decimals.

1. Notice that you do not have to clear the dials because they clear automatically when dividend is entered with enter dividend key instead of plus bar.

2. Depress dividend (126) into keyboard at extreme left.

3. Tap enter dividend key. The "enter dividend" key clears counter dial and moves carriage to extreme right at the same time.

4. Notice the register dial; the 126 appears with 12 zeros after it. So we can assume these are decimal places. Move the decimal marker so that it reads 126.000000000000.

5. Next depress the divisor into the keyboard with the first digit in the divisor directly under the first digit in the dividend. There are 7 keys after the 5 of the keyboard, so we can assume, even though the zeros are not depressed, that the divisor is 5.0000000, or 7 decimal places. Uncover the decimal so that the keyboard reads 5.0000000. Subtract the number of decimal places in the divisor (7) from the number of decimal places in the dividend (12) to see how many places will appear in the quotient--5. Move the decimal marker in the upper dial 5 places from the right.

6. Tap divide key.

7. Read the answer in counter dial--25.2 (decimal point being 5 places from the right).

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the rotary calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

## FRIDEN ROTARY CALCULATOR
## TAPE NO. 4

### Script for Tape No. 4 to Accompany Film No. 4

The Friden rotary calculator has two dials.

The upper dial shows the product in multiplication, the dividend in division, and the sum in addition and the difference in subtraction.

The lower dial shows the multiplier in multiplication, the quotient in division after dividing, and the count of items in addition or subtraction.

As we go through the steps for addition, subtraction, multiplication and division, work the problems with me on the Friden automatic rotary calculator.

Addition is the simplest operation, so we shall begin with that.

### Addition

The carriage should be all the way to the left, the normal position for adding. Depress the left shift key. It is the key with an arrow pointing to the left. The extreme right column is for units, the second column from the right for tens, the third column from the right for hundreds, etc.

You may clear all dials and the keyboard by simultaneously depressing the clear multiplier key, and the keyboard clear key. Always do this before you begin a problem to make sure the machine is clear. If numbers from a previous problem are in the machine, they will be added into your new problem. If you want to clear only the keyboard, depress the keyboard clear key.

The add key should be in down position.

Depress addends into the keyboard and add them in with the plus bar.

33 - tap plus bar
38 - tap plus bar
224 - tap plus bar
789 - tap plus bar

1,084

Read the answer 1,084 (the sum or total) in the upper dial. The lower dial counts the number of subtraction and addition revolutions.

Now we will add numbers that contain decimals. Expose the decimal indicator on the keyboard two decimal places from the right and move the decimal markers on the upper dial two places from the right.

Clear all dials and keyboard.

$ 4.79 - tap plus bar
7.91 - tap plus bar
3.24 - tap plus bar
19.47 - tap plus bar

$35.41

Read the sum 35.41 in the upper dial.

Now, let's add some numbers with more than two decimal places. Suppose some figures have three decimals; some, two; some, four. Let's place our decimal points at a place that will accommodate the largest number of decimal places; that is, four. Always do this when you have a varying amount of decimals.

1. Clear all dials and keyboard.
2. Enter addends around decimal point.

48.19
33.214
194.1
1,643.0017

1,918.5057

Verification is obtained by getting the same answer twice since there is no printed tape to check.

## Subtraction

To perform simple subtraction, move the carriage all the way to the left. Clear all dials and the keyboard.

Move decimal markers.

Depress the minuend 145 into the keyboard and add it in with the plus bar. Then depress the subtrahend 50 into the keyboard and tap the minus bar. Read the answer 95 in the upper dial.

$$\begin{array}{r} 145 \\ \underline{-50} \\ 95 \end{array}$$

Suppose you want to subtract 450 from 79, clear keyboard and dials, depress the minuend (79) into the keyboard and add it into the machine with the plus bar. Depress the subtrahend (450) into the keyboard and subtract it by tapping the minus bar. Read the answer in the upper dial. It reads:

9999999999629

This is not the answer. These 9's indicate that a credit answer has been calculated. The 629 preceded by the 9's is the complement of the answer. A complement of a number is the difference between the number and the next higher power of 10, which in this case is 1,000.

To convert the complement into a credit balance:

1. Depress 629 on the keyboard and precede it by as many 9's as are in the keyboard's capacity.
2. Add key up.
3. Then tap the minus bar twice.

The answer is 371. Be sure to indicate a credit balance with a minus sign or label them Cr. or credit.

```
   79
 -450
 ----
  371 Cr.
```

Constants in Addition

A fixed figure that is added or subtracted again and again to different numbers (called variables) is called a constant:

| Constant | + | Variable | = | Sum |
|---|---|---|---|---|
| 7.40 | | 15.25 | | 22.65 |
| 7.40 | | 17.95 | | 25.35 |
| 7.40 | | 21.30 | | 28.70 |

To add constants:

1. Clear machine (add key up).
2. Set decimal markers.
3. Enter constant of 7.40 onto keyboard and depress plus bar quickly and release. If you do not release the plus bar right away, it will over add.
4. Clear keyboard.
5. Enter variable of 15.25 onto keyboard and tap plus bar.
6. Record sum (22.65).
7. Depress minus bar to subtract variable that has been held in the keyboard.
8. Constant reappears in upper dial.
9. Clear keyboard. Enter second variable (17.95) into keyboard and depress plus bar.
10. Record sum (25.35).
11. Depress minus bar to subtract variable that has been held in the keyboard.
12. Repeat for as many variables as you have.

## Constants in Subtraction

| Variable | - | Constant | = Difference |
|---|---|---|---|
| 75.45 | | 17.50 | 57.95 |
| 35.00 | | 17.50 | 17.50 |
| 54.17 | | 17.50 | 36.67 |

To subtract constants:

1. Clear machine.
2. Add key up. Enter constant (17.50) into keyboard.
3. Depress minus bar.
4. Clear keyboard. Enter variable (75.45) into keyboard.
5. Depress add bar.
6. Read and record difference (57.95).
7. Depress minus bar to subtract variable that has been held in keyboard.
8. Clear keyboard. Enter second variable (35.00) into keyboard.
9. Depress add bar.
10. Read and record difference (17.50).
11. Depress minus bar to subtract variable that has been held in keyboard.
12. Repeat for as many variables as you have.

## Multiplication

Multiplication is automatic.

The problem is 1276 x 743.

1. Clear machine.
2. Depress the multiplicand (743) into the keyboard.
3. Add key down. Enter the multiplier (1276) as it is read from left to right in the multiplier keyboard. It is now read in the multiplier dial.

[redacted]

4. Depress clear multiplier key.

The product, 948,068, is shown in the upper dial.

The multiplier, 1276, is shown in the middle dial.

NOTE: Always punctuate your answer. 948,068 is much easier to read with a comma in it.

## Decimals in Multiplication

Suppose you wanted to multiply 12.25 by 3.

There is a very easy way to set decimals on the Friden rotary calculator.

1. Set keyboard dial decimal pointer for number of decimals in the multiplicand; in this problem, 2.
2. Set decimals in multiplier dial for number of decimals in multiplier; in this problem, 0.
3. Set upper dial decimal on two - the number of decimals in the multiplier plus the number of decimals in the multiplicand.
4. Carriage at the extreme left.
5. Depress multiplicand (12.25) into the keyboard around decimals.

Enter multiplier (3) in the automatic multiplier keyboard.

Depress clear multiply. Read the product (36.75) in the upper dial. It is not necessary to clear the upper and lower dials before the next operation, because the clear multiply key clears and multiplies at the same time.

However, it is much easier to work around fixed decimals so that you will not have to add the number of decimals in the multiplier and in the multiplicand every time you work a problem.

[redacted]

Let me explain:

19.45 x 17.304 =
24.19 x 39.1643 =
45.1076 x 25.3071 =

One of these problems will have 5 decimal places in the product; one, 6; and one, 8. Four is the largest number of decimals in any multiplicand, so let's mark off four places in the keyboard by uncovering the decimal marker four places to the left. Four is also the largest number of decimals in the multiplier, so let's mark off four places in the lower dial where the multiplier appears and in the multiplier keyboard. Four decimals in the multiplier and four decimals in the multiplicand equals 8, so let's mark off 8 places in the upper dial where the answer appears.

In other words, number of decimals in keyboard plus number of decimals in multiplier dial equals number of decimals in upper dial.

1. Depress the multiplicand (17.304) into the keyboard around the decimals. It will appear to be 17.3040.

2. Depress the multiplier (19.45) into the multiplier keyboard. It will be necessary to depress the zero key twice to position the multiplier around the decimals.

3. Depress clear multiply key.

4. Read the product in the upper dial--336.56280000. Round all answers to 5 decimal places. In this case, however, the product will contain 4 decimal places, since we drop the zeros. Notice that the multiplier has been transferred to the lower dial.

Multiplying Three Factors

5.77 x 7.4 x 9.2

1. Multiply the first two factors as you normally would, and it is much easier and faster to continue to work around the fixed decimal program of 4-4-8.

2. Depress the first factor (5.77) into keyboard around the decimals.
3. Depress second factor (7.4) into multiplier keyboard around the decimals.
4. Depress clear multiply key.
5. Depress product of first operation (42.698) into the keyboard around the decimal.
6. Depress third factor (9.2) into multiplier keyboard around the decimals.
7. Depress clear multiply key.
8. Read the product in the upper dial (392.8216).

Accumulated Multiplication

Suppose you wanted the sum of:

6 x 1.4
5 x 15.7
4.3 x 8.7

You could find the product of each multiplication and add the three products together to get the sum. But on a rotary calculator, there is an easier way. Just omit clearance of the upper dial between multiplications. Let's continue to work around the fixed decimal program of 4-4-8.

1. Depress the multiplicand (1.4) into the keyboard around the decimal.
2. Depress the multiplier (6) into multiplier keyboard around decimals.
3. Depress clear multiply key.
4. Engage the upper dial lock.
5. Depress second multiplicand (15.7) into keyboard.

6. Depress the multiplier (5) into multiplier keyboard around decimals.

7. Depress clear multiply key.

8. Notice that the sum of the first two products (86.9) remains in the upper dial.

9. Depress the third multiplicand (8.7) into the keyboard around the decimals.

10. Depress multiplier (4.3) into multiplier keyboard around the decimals.

11. Depress clear multiply key.

12. Read the answer in the upper dial (124.31), and disengage the upper dial lock.

Negative Multiplication

Negative multiplication is repeated subtraction, the same as positive multiplication is repeated addition. It is very helpful when net amounts are desired or when figuring chain discounts.

$150 less 20%, less 10%, less 5%

1. Add key down.

2. Enter 150 on the keyboard around the decimals set for previous problems.

3. Multiply by 1.

4. Position the operation indicator on minus.

5. Enter 150 on the keyboard around the decimals.

6. Depress .20 into multiplier keyboard around decimals.

7. Depress clear multiply key.

8. Depress product shown in upper dial (120.00) onto the keyboard around decimals.

9. Depress .1 into the multiplier keyboard around decimals.

10. Position the operation indicator on minus.

11. Depress clear multiply key.

12. Depress product shown in upper dial (108.00) onto the keyboard around decimals.

13. Position the operation indicator on minus.

14. Depress (.05) onto multiplier keyboard around decimals.

15. Depress clear multiply key.

16. Read the product in the upper dial (102.60).

## Division

The dividend can be depressed into the keyboard at three different places: at the extreme right of the machine, at the extreme left of the machine, or around fixed decimals.

Division is best done around fixed decimal points so that quotients will be carried out as many decimal places as desired.

The number of decimals in the upper dial minus the number of decimals in the keyboard equals the number of decimals in lower dials where quotient is read.

Dividing around decimals is very easy on the Friden rotary calculator.

Simply set tab key, which is similar to setting tab key on a typewriter, for number of decimal points you want in quotient, allowing one extra one for rounding off. If you want five decimal places, set tab on six.

Set keyboard decimal on 5 to accommodate both divisor and dividend.

Set upper dial decimal on 11.

Set lower dial decimal on 6 (11 minus 5 equals 6.)

The problem is 126 ÷ 5.

1. Enter dividend (126) on keyboard around decimals.
2. Tap enter dividend key.
3. Enter divisor (5) onto keyboard around decimals.
4. Tap both divide keys simultaneously.
5. Read quotient (25.25) in lower dial.

Notice that carriage returned automatically to correct position to read decimal in quotient and to work next problem. It is not necessary to clear lower dial before working next problem.

To express a quotient as a whole number with a remainder, divide at the extreme right.

(126 ÷ 5) =

1. Move carriage to extreme left.
2. Depress the dividend (126) into the keyboard at the extreme right.
3. Tap plus bar.
4. Clear lower dial.
5. Depress divisor (5) into the keyboard with the first digit of the divisor aligned with the first digit of the dividend. This is done by moving the carriage right.
6. Tap both divide keys simultaneously.
7. The quotient (25) appears in the lower dial, with the remainder of 1 shown in the upper dial.

Note: This is the only way to get an answer with a remainder; otherwise, the answer in the upper dial will show as many decimal places as the upper dial will accommodate.

Divide at the Extreme Left

1. Set tab stop on 8.
2. Move the carriage to extreme right.
3. Depress dividend (126) into extreme left of keyboard.
4. Tap enter dividend key.
5. Depress divisor (5) into keyboard with first digit in divisor aligned with the first digit of dividend in upper dial.
6. Depress both divide keys simultaneously.
7. The quotient is 25.2 as read in the lower dial.

Let's work the problem again, paying attention to the decimals.

1. Notice that I will not clear dials because they clear automatically when dividend is entered with enter dividend key.
2. Depress dividend (126) into keyboard at extreme left.
3. Tap enter dividend key. The "enter dividend" key clears upper dial.
4. Notice the upper dial; the 126 appears with 15 zeros after it, so we can assume these are decimal places. Move the decimal marker after the 126 in the upper dial.
5. Next depress the divisor into the keyboard with the first digit in divisor directly under the first digit in dividend. There are 9 keys after 5 on the keyboard, so we can assume, even though the zeros are not depressed, that the divisor is 5.000000000, or 9 decimal places. Move the keyboard decimal marker to the position after the 5. Subtract the number of decimal places in the divisor (9) from the number of decimal places in the dividend (15) to see how many decimal places will appear in the quotient--6. Move the decimal marker 6 places from the right in the lower dial where the quotient will appear.
6. Tap both divide keys simultaneously.
7. Read the answer in lower dial--25.2 (decimal point being 6 places from the right).

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the rotary calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

# MARCHANT ROTARY CALCULATOR
## TAPE NO. 5

## Script for Tape No. 5 to Accompany Film No. 5

The Marchant rotary calculator has three dials:

The upper dial shows the multiplier in multiplication, the quotient in division, and the count of items in addition or subtraction.

The middle dial shows the answer in addition, subtraction, and multiplication; the dividend in division before dividing; and the remainder in division after dividing.

The keyboard dial shows in a straight line every figure entered in the keyboard.

As we go through the steps for addition, subtraction, multiplication, and division, work the problems with me on the Marchant automatic rotary calculator.

Addition is the simplest operation, so we shall begin with that.

### Addition

The carriage should be all the way to the left, the normal position for adding. Depress the left shift key. It is the key with an arrow pointing to the left. The extreme right column is for units, the second column from the right for tens, and the third column from the right for hundreds, etc.

You may clear all dials and keyboard by simultaneously depressing the upper dial clear key, the middle dial clear key, and the keyboard clear key. Always do this before you begin a problem to make sure the machine is clear. If numbers from the previous problem are in the machine, they will be added into your new problem. If you want to clear only the keyboard, depress the keyboard clear key. If you want to clear only the upper dial, depress the upper dial clear key.

If you want to clear only the middle dial, depress the middle dial clear key. Upper dial control on plus (+).

Depress addends into the keyboard and add them in with the plus bar.

33 - tap plus bar
38 - tap plus bar
224 - tap plus bar
798 - tap plus bar

1,093

Read the answer 1,093 (the sum or total) in the middle dial. The upper dial counts the number of subtraction and addition revolutions.

Now we will add numbers that contain decimals. Move the keyboard dial decimal pointer two decimal places to the left, and position the orange middle dial quick-set decimal at "+."

Clear all dials and keyboard.

$ 4.79 - tap plus bar
3.24 - tap plus bar
7.91 - tap plus bar
19.47 - tap plus bar

$35.41

Read the sum 35.41 in the middle dial .

Now, let's add some numbers with more than two decimal places. Suppose some figures have three decimals; some, two; some, four. Let's place our decimal point at a place that will accommodate the largest number of decimal places; that is, four. Always do this when you have a varying amount of decimals.

1. Clear all dials and keyboard.
2. Enter addends around decimal points.

$$\begin{array}{r} 47.19 \\ 33.214 \\ 194.1 \\ \underline{1,643.0017} \\ 1,917.5057 \end{array}$$

Verification is obtained by getting the same answer twice since there is no printed tape to check.

Subtraction

To perform simple subtraction, move the carriage all the way to the left. Clear all dials and the keyboard.

Move decimal markers.

Depress the minuend 145 into the keyboard and add it in with the plus bar. Then depress the subtrahend 50 into the keyboard and tap the minus bar. Read the answer in the middle dial.

$$\begin{array}{r} 145 \\ \underline{-50} \\ 95 \end{array}$$

Suppose you want to subtract 450 from 79, clear keyboard and dials; depress the minuend (79) into the keyboard and add it into the the machine with the plus bar; depress the subtrahend (450) into the keyboard and subtract it by tapping the minus bar. Read the answer in the middle dial. It reads:

9999999999629

This is not the answer. These 9's indicate that a credit answer has been calculated. The 629 preceded by the 9's is the complement of the answer. A complement of a number is the difference between the number and the next higher power of 10, which in this case is 1,000.

To convert the complement into a credit balance:

1. Depress 629 on the keyboard and precede it by as many 9's as are in the keyboard's capacity.
2. Depress the middle dial clear key.
3. Then tap the minus bar.

The answer is 371. Be sure to indicate a credit balance with a minus sign or label them Cr. or credit.

79
-450

371 Cr.

Constants in Addition

A fixed figure that is added or subtracted again and again to different numbers (called variables) is called a constant.

| Constant | + | Variable | = | Sum |
|---|---|---|---|---|
| 7.40 | | 15.25 | | 22.65 |
| 7.40 | | 17.95 | | 25.35 |
| 7.40 | | 21.30 | | 28.70 |

To add constants:

1. Clear machine.
2. Set decimal markers.
3. Enter constant of 7.40 onto keyboard and depress + key.
4. Enter variable of 15.25 onto keyboard.
5. Depress multiplier key "1."
6. Record sum (22.65).

7. Depress minus bar to subtract variable that has been held in keyboard.

8. Constant reappears in middle dial.

9. Enter second variable (17.95) into keyboard and depress multiplier key "1."

10. Record sum (25.35).

11. Depress minus bar to subtract variable that has been held in keyboard.

12. Repeat for as many variables as you have.

## Constants in Subtraction

| Variable | - | Constant | = | Difference |
|---|---|---|---|---|
| 75.45 | | 17.50 | | 57.95 |
| 35.00 | | 17.50 | | 17.50 |
| 54.17 | | 17.50 | | 36.67 |

## To Subtract Constants

1. Clear machine.

2. Enter constant (17.50) into keyboard.

3. Depress minus bar.

4. Enter variable (75.45) into keyboard.

5. Depress multiplier key "1."

6. Read and record difference (57.95).

7. Depress minus bar to subtract variable that has been held in keyboard.

8. Enter second variable (35.00) into keyboard.

9. Depress multiplier key "1."

10. Read and record difference (17.50).

11. Depress minus bar to subtract variable that has been held in keyboard.

12. Repeat for as many variables as you have.

## Multiplication

Multiplication is automatic.

The problem is 1276 x 743.

1. Depress the multiplicand (743) into the keyboard.

2. Move the carriage four row positions to the right by depressing the tab key pointing in that direction. Notice the red arrow over the fourth row in the upper dial. This is where the multiplier will appear. Now enter the multiplier as it is read from left to right in the automatic multiplier keyboard.

The product 948,068 is shown in the middle dial.

The multiplier, 1276, is shown in the upper dial.

The multiplicand, 743, is shown in the keyboard dial. Multiplication is the only operation after which the keyboard does not clear automatically.

You can see that it is not necessary to work the problem a second time for verification since the multiplicand in the keyboard dial and the multiplier in the upper dial provide good proof of correct entry.

NOTE: Always punctuate your answers. 948,068 is much easier to read with a comma in it.

## Decimals in Multiplication

Suppose you wanted to multiply 5.25 by 3.

There is a very easy way to set decimals on the Marchant rotary calculator.

1. Set keyboard dial decimal pointer for number of decimals in the multiplicand. In this problem--2.

2. Set upper orange decimal for number of decimals in multiplier--zero in this problem.

3. Set middle dial decimal over the same number as shown in the upper dial decimal.

4. Carriage at extreme right.

5. Depress multiplicand (5.25) into the keyboard around decimals.

6. Enter the multiplier 3 in the automatic multiplier keyboard.

7. Read the product (15.75) in the middle dial.

To get ready for next multiplication, simultaneously depress the keyboard clear key, the middle dial clear key, the upper dial clear key, and the carriage return key.

However, it is much easier to work around fixed decimals so that you will not have to add the number of decimals in the multiplier and in the multiplicand every time you work a problem.

Let me explain.

19.45 x 17.304 =

24.19 x 39.1643 =

45.1076 x 25.3071 =

One of these problems will have five decimal places in the product; one, 6; and one, 8. Four is the largest number of decimals in any multiplicand, so let's mark off four places in the keyboard by moving the decimal marker four places to the left. Four is also the largest number of decimals in any multiplier, so let's mark off four places in the upper dial where the multiplier appears. But, this time we will use black slide-set decimals. Four decimals in the multiplier plus four decimals in the multiplicand equals 8, so let's mark off 8 places in the middle dial where the answer appears, also using the black slide-set decimals.

In other words, the number of decimals in keyboard plus number of decimals in upper dial equals number of decimals in middle dial.

1. Depress the multiplicand (17.304) into the keyboard around the decimals. It will appear to be 17.3040.
2. Move the carriage to the right until the red arrow over the upper dial, called the active dial indicator, is in position to register multiplier around the decimals.
3. Depress the multiplier (19.45) into the automatic multiplier keyboard.
4. Read the product in the middle dial--336.56280000. Round all answers to 5 decimal places. In this case, however, the product will contain 4 decimal places, since we drop the zeros

Multiplying Three Factors

5.77 x 7.4 x 9.2

1. Multiply the first two factors as you normally would, and it is much easier and faster to work around fixed decimals.
2. Clear the keyboard and dials from the previous problem.
3. Depress the first factor (5.77) into keyboard.
4. Depress second factor (7.4) into automatic multiplier keyboard.
5. Clear keyboard.
6. Depress product of first operation (42.698) into the keyboard.
7. Clear upper and middle dials and reposition carriage to multiply around decimals.
8. Multiply by third factor (9.2).
9. Read the product in the register dial (392.8216).

## Accumulated Multiplication

Suppose you wanted the sum of:

6 x 1.4
5 x 15.7
4.3 x 8.7

You could find the product of each multiplication and add the three products together to get the sum. But on a rotary calculator, there is an easier way. Just omit clearance of the middle dial between multiplications. Let's continue working around the fixed decimal program of 4-4-8.

1. Clear dials and keyboard.
2. Depress the multiplicand (1.4) into the keyboard around decimals.
3. Depress the multiplier (6) into automatic multiplier keyboard around decimals.
4. Clear keyboard and upper dial, leaving the product of the first multiplication in the middle dial.
5. Depress second multiplicand into keyboard around the decimals.
6. Depress the multiplier (5) into automatic multiplier keyboard around decimals.
7. Clear keyboard and upper dial.
8. Notice that the sum of the first two products (86.9) remains in the middle dial.
9. Depress the third multiplicand (8.7) into the keyboard around the decimals.
10. Depress multiplier (4.3) into automatic multiplier keyboard around decimals.
11. Read the answer in the middle dial (124.31).

## Negative Multiplication

Negative multiplication is repeated subtraction, the same as positive multiplication is repeated addition. It is very helpful when net amounts are desired or when figuring chain discounts.

1. Let's set a tab (much the same as setting a tab on a typewriter) so that the carriage will automatically stop in the right position; that is, tab number 4.
2. Move the carriage right by depressing the carriage shift key pointing in that direction.
3. Clear the keyboard and dials.

Problem is $150 less 25%, less 10%, less 5%.

4. Enter 150 on the keyboard around the decimals.
5. Multiply by 1 (notice you will have to backspace one space).
6. Depress Re. Neg. X key.
7. Upper dial control on minus (-). Depress .25 into automatic multiplier keyboard around decimals.
8. Clear keyboard and upper dial.
9. Depress product shown in the middle dial (112.5) onto the keyboard around the decimals.
10. Depress .1 into the automatic multiplier keyboard around decimals.
11. Clear keyboard and upper dial.
12. Depress product shown in the middle dial (101.25) onto the keyboard around the decimals.
13. Depress .05 onto automatic multiplier keyboard around decimals.
14. Read the answer in the middle dial (96.1875) rounded off to 96.19. Disengage Re. Neg. X key by depressing the stop key or the carriage return key.

## Division

The dividend can be depressed into the keyboard at three different places; at the extreme right of machine, at extreme left of machine, or around fixed decimals.

Division is best done around fixed decimal points so that quotients will be carried out as many decimal places as desired.

The number of decimals in the middle dial minus the number of decimals in the keyboard equals the number of decimals in upper dial where quotient is read.

Dividing around decimals is very easy on the Marchant rotary calculator.

Simply set tab for number of decimal points you want in quotient, allowing one extra one for rounding off. If you want five places, set tab on six.

Set keyboard decimal to accommodate both divisor and dividend; say, 5 places. Set the upper orange decimal on ÷. Position the magic window middle dial on "+."

The problem is 126 - 5.

1. Upper dial control on plus (+). Depress carriage return and clear all dials and keyboard with one stroke.
2. Enter dividend (126) on keyboard around decimals.
3. Tap dividend plus (+) key.
4. Enter divisor (5) onto keyboard around decimals. Tap divide key.
5. Read quotient (25.2) in upper dial.

Notice that carriage returned automatically to the correct position to read decimal in quotient and to work next problem. It is not necessary to clear upper dial before working the next problem because the dividend plus key will clear it automatically.

To express a quotient as a whole number with a remainder, divide at the extreme right of the keyboard.

The problem is 126 ÷ 5.

1. Move carriage to extreme left.
2. Position division clear key away from you so the blue color shows.
3. Depress the dividend (126) into the keyboard at the extreme right.
4. Tap dividend plus key.
5. Depress divisor (5) into the keyboard with the first digit of the divisor aligned with the first digit of the dividend. This is done by moving the carriage right.
6. Tap divide key.
7. The quotient (25) appears in the upper dial, with the remainder of 1 shown in the middle dial.

Note: This is the only way to get an answer with a remainder; otherwise, the answer in the upper dial will show as many decimal places as the upper dial will accommodate.

Divide at the Extreme Left of the Keyboard

1. Clear tab by depressing the highest number tab (10).
2. Move the carriage to extreme right. Clear dials from previous operation.
3. Return the division clear key to normal position. Depress dividend (126) into extreme left of keyboard.
4. Tap dividend plus key.
5. Depress divisor (5) into keyboard with first digit in divisor aligned with the first digit of dividend in middle dial

6. Depress divide key

7. The quotient is 25.2 as read in the upper dial.

Let's work the problem again, paying attention to the decimals.

1. Depress dividend (126) into keyboard at extreme left.

2. Tap dividend plus key.

3. Notice the middle dial; the 126 appears with 16 zeros after it, so we can assume these are decimal places. Uncover the black slide-set decimal after the 126 in the middle dial.

4. Next depress the divisor into the keyboard with the first digit in the divisor directly under the first digit in the dividend. There are 9 keys after the 5 on the keyboard, so the divisor is 5.000000000, or 9 decimal places. Move the keyboard decimal pointer to the position after the 5. Subtract the number of decimal places in the divisor (9) from the number of decimal places in the dividend (16) to see how many places will appear in the quotient--7. Uncover the black slide-set decimal 7 places from the right in the upper dial.

5. Tap divide key.

6. Read the answer in upper dial--25.2 (decimal point being 7 places from the right).

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the rotary calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

# OLIVETTI-UNDERWOOD TEN-KEY PRINTING CALCULATOR
## TAPE NO. 6

### Script for Tape No. 6 to Accompany Film No. 6

The ten-key printing calculator is a combination of the ten-key adding machine and the rotary calculator.

1. This machine automatically adds, subtracts, multiplies, and divides.
2. It has a credit balance feature that provides for true negative totals.
3. It has a printed tape which shows proof of all calculations.
4. It has 10 keys (actually 12 because it has three zero keys, one for one zero, one for two zeros, and one for three zeros).
5. The middle row of keys--the 4,5, and 6--is the home row. These keys have a rounded, indented surface, and the other keys have a flat surface. The index finger controls the 7, 4, and 1. The middle finger controls the 8, 5, and 2, and the ring finger controls the 9, 6, and 3. The operational keys on the left are controlled by the index finger and the operational keys on the right by the little finger.

In this film you will be shown how to work each type of problem that you will be working in your workbook, with the exception of problems involving percentage of increase and decrease, which is explained on page 48 of the workbook. You will be shown proper finger techniques. You have your calculator in front of you, and I suggest that you work these problems with me.

Let's begin with simple addition.

1. First, total the machine, using the little finger to depress the "T" bar. Always do this before any calculation, because any numbers previously entered into the machine will alter your answer. Notice the "T" on your tape. This indicates that the machine is clear.

It is very important that you develop the touch control at the very beginning of your instruction. The beginning exercises in your workbook will be designed to help you master touch control.

2. Place your index, middle and ring finger on the 4, 5, and 6. The add bar "D" is depressed with the little finger. There is a second add bar that may be depressed with the thumb. This auxiliary bar is provided to facilitate long series of addition.

3. To set a number on the machine, read the number from left to right. For example, we will add 45 and 56 = 101. Depress the four and the five--then tap the plus bar; depress the five and the six--then depress the plus bar. Depress the total bar and read the sum on the tape.

Let's work another addition problem. This time notice the column indicator. This column indicator serves three purposes.

1. It shows how many digits have been entered.
2. It divides digits into groups of three.
3. It shows whether or not the machine is holding a negative balance, and we will talk more about this feature later.

STEP ONE: Total.

$$\begin{array}{r} 7,898,456,123 \\ \underline{+ \quad 7,418,529} \\ 7,905,874,652 \end{array}$$

STEP TWO: Enter augend 7,898,456,123 in keyboard (notice column indicator; it shows that we have depressed 10 digits).

STEP THREE: Tap plus bar.

STEP FOUR: Enter addend (7,418,529) into keyboard.

STEP FIVE: Tap plus bar.

STEP SIX: Total.

STEP SEVEN: Look at the paper tape to prove the correctness of the operation.

Notice + symbol printed on the tape. An appropriate symbol is printed for all operations--division, subtraction and multiplication.

Notice that the tape prints no decimals or commas. The decimal indicator, which is four sliding metal prongs, separates whole numbers on the tape from decimals and divides whole numbers into groups of three for easy reading.

Let's get a subtotal and number the next problem 34 with the non-add key. Depression of the non-add key will enter the desired digit or digits on the tape, but the number will not be added into the answer.

Problem No. 34 15
17
18
ST 50
45
67

162

1. Clear machine by depressing the "T" key.
2. Enter the number 34 by depressing the 3 and 4.
3. Tap the non-add key.
4. Depress augend (15) into keyboard.
5. Hit plus bar.
6. Depress the addend (17) into the keyboard.
7. Hit plus bar.
8. Depress the addend (18) into keyboard.
9. Hit plus bar.
10. At this point to get a subtotal depress the ST bar.
11. Read the subtotal (50) on the paper tape.

12. Depress the 4th addend (45) into keyboard.

13. Hit plus bar.

14. Depress the 5th addend (67) into keyboard.

15. Hit plus bar.

16. Total (162).

To subtract, follow the addition steps except tap the minus (-) bar instead of the plus bar for the subtrahend.

1. Clear machine by depressing the "T" key.
2. Enter minuend (65) into keyboard.
3. Hit plus bar.
4. Enter subtrahend (35) into keyboard.
5. Hit minus bar.
6. Total.
7. Read remainder (30) on the tape.

$$\begin{array}{r} 65 \\ \underline{-35} \\ 30 \end{array}$$

Credit Balance

Let's subtract 65 from 30.

1. Total the machine.
2. Depress minuend (30) into the keyboard.
3. Tap plus bar.
4. Depress subtrahend (65) into the keyboard.
5. Tap minus bar.
6. Notice the white marker in the column indicator. This shows that the machine is holding a negative balance.
7. Total.

8. Also notice that the difference is shown on the tape with a C sign beside it to indicate a credit balance.

There are several ways to correct a mistake.

1. If you want to change the last digit or digits of a keyboard entry, simply hit the backspace key. For example, suppose 455 were depressed, and 456 should have been depressed. Notice the 3 in the column indicator. Tap the backspace key. Now, notice the 2 in the column indicator, which shows that only two digits have been entered. Now depress the correct digit--the 6.

2. To clear all the digits that have been depressed, depress the clear key. For example, suppose 544 were depressed, and 455 should have been depressed. Notice the 3 in the column indicator. Depress the clear key, and all three digits are cleared. Notice the column indicator. Now depress correct entry--455.

3. If a number has been entered on keyboard and added into the machine, the same number can be entered on the keyboard and subtracted.

4. Likewise, an incorrect number that has been subtracted can be added into the machine.

The Repeat Lever

On occasion, you might wish to add the same number several times.

In this case, engage the repeat lever to lock the number into the keyboard.

$$\begin{array}{r} 7.95 \\ 3.22 \\ 3.22 \\ 3.22 \\ \underline{3.22} \\ 20.83 \end{array}$$

1. Total.

2. Enter 7.95 with plus bar.

3. Engage repeat key.

4. Depress 3.22 into keyboard and tap plus bar 4 times.

The repeat lever key automatically returns to its normal position when the total or subtotal key is depressed. If you do not want the keyboard to clear, hold repeat key in engaged position while you total or subtotal.

If you want to add other figures before you total, depress keyboard clear key and disengage repeat key.

## Automatic Date Key

The date is set by positioning the four special print wheels with a stylus or pencil. It prints automatically and simultaneously with any operation when the date key is depressed.

45 + 45 = 90

## Multiplication

Factors are entered into the keyboard as they are written. The total is obtained automatically when automatic total lever is engaged and when automatic subtotal lever is disengaged (up position).

24 x 75 = 1800

Depress 24 into keyboard.

Depress the multiplier entry key x (sometimes called times key).

Depress 75 into keyboard.

Depress the equal multiplication key (=). It is a blue key.

If the automatic total lever were disengaged, the total would not print until the total key is depressed.

## Automatic Subtotal Lever

A subtotal in multiplication will print automatically when the automatic subtotal lever is on (down position). This permits the accumulation of products. For example, in this problem

75 x 94

81 x 124

42 x 305

19 x 728 ---Return automatic subtotal to off position.

43,736

With the automatic subtotal on (in down position) multiply the first three parts of the problem. Before the final operation, return automatic subtotal lever to off position.

Notice subtotals on tape after every multiplication operation. Accumulated multiplication is possible without subtotals when automatic subtotal and the automatic total are in off position.

## Multiplication of Decimals

Decimal places are pointed off the same as in paper-and-pencil multiplication: that is, the sum of the decimal places in the multiplier and the multiplicand is pointed off in the product.

For example: 17.95 x 3.5 = 62.825

2 + 1 = 3 decimal places

When decimals occur in accumulative multiplication, the same number of decimal places in each multiplication must be maintained. This can be done by adding zeros to either the multiplier or multiplicand.

4.75 x 4.25
1.5 x 15.21
75. x 4.5
.15 x 20.

383.5025

The largest number of decimal places in the product of the individual multiplications will be four (4.75 x 4.25), so let's mark off four decimal places with the movable decimal indicator.

Remember to put automatic total and automatic subtotal levers in off position.

Depress 475 into keyboard.

Depress times key (x).

Depress 425.

Depress equal multiplication key (=).

Depress 150 into keyboard to maintain four decimal places.

Depress times key (x).

Depress 1521 into the keyboard.

Depress equal multiplication key (=).

Depress 75000 into keyboard to maintain four decimal places.

Depress times key (x).

Depress 45 into keyboard.

Depress equal multiplication key (=).

Return automatic total to on position.

Depress 1500 into keyboard to maintain four decimal places.

Depress times key (x).

Depress 20 into keyboard.

Depress equal multiplication key (=).

Notice that the answer shows only the total of the products. We could have gotten subtotals after each operation if we had engaged the subtotal key.

## Multiply Three of More Factors

15 x 75 x 105 = 118,125

1. Clear machine (automatic total on; automatic subtotal off--up position).
2. Set first factor (15) into keyboard.
3. Depress x key.
4. Set second factor (75) into keyboard.
5. Depress TR key. (This is an automatic product transfer key.)
6. Set third factor (105) into keyboard.
7. Depress = key.

## Constant Factor in Multiplication

A memory feature of this machine automatically retains a constant factor in multiplication. In this example, 250 is the constant multiplier.

250 x 175 = 43,750

250 x 325 = 81,250

250 x 495 = 123,750

1. Automatic total lever on.
2. Automatic subtotal lever off.
3. Clear machine by depressing T key.
4. Depress 250 into keyboard.

[redacted]

5. Depress x key.

6. Depress 175 into keyboard.

7. Depress = key.

8. Depress 325 into keyboard.

9. Depress = key.

10. Depress 495 into keyboard.

11. Depress = key.

If you wish to verify constant multiplier, depress mem out key and non-add key in succession.

This is one of the several ways to store a number in the memory device. The multiplier 250, which is verified on the tape, will stay in the memory device until a new number is entered and automatically clears out the previous number.

## Division

Division is automatic, and factors are entered as they are read.

In the problem 175 ÷ 25 = 7

1. Automatic total on.

2. Automatic subtotal off.

3. Enter 175 into keyboard.

4. Depress D+ key to enter dividend.

5. Enter 25 into keyboard.

6. Depress divide equals key $\div$.

7. The answer is 7.

In the problem $177 \div 25 = 7\frac{2}{25}$

Let's do the same problem again except change the dividend to 177.

1. Total machine.
2. Enter 177 into keyboard.
3. Depress dividend key to enter dividend.
4. Depress 25 into keyboard.
5. Depress divide equal key.
6. The answer is 7 with a remainder of 2.

Decimals in Division

The number of decimals in the quotient is always equal to the number of decimal places in the dividend less the number of decimal places in the divisor.

1. If dividend is larger than the divisor, for whole numbers, add as many zeros to dividend as decimal places are required in quotient. To carry the quotient two decimal places, add two zeros. Enter 17700 into keyboard; depress dividend key; enter 25 into keyboard; depress divide equals key. The answer is 7.08. In the problem

   $$74.4321 \div 5.423$$

   you would have one decimal place in the quotient because 3 decimal places in the divisor subtracted from 4 decimal places in the dividend = 1. However, if you will add two zeros to dividend, you will have three decimal points in quotient because 6 minus 3 = 3.

   $$75.432100 \div 5.423 = 13.909$$

2. If the dividend is smaller than the divisor, add as many zeros to the dividend as there are digits in divisor (whole numbers or decimals). Then subtract the number of decimal places in divisor from number in dividend to find out how many places to mark off. In the problem

   $$21.95 \div 375.7$$

add 4 zeros to the dividend, and you will have 5 decimal places in the quotient; this is, 6 in the dividend minus 1 in the divisor.

$$21.950000 \div 375.7 = .05842$$

To follow addition or multiplication by division after multiplication or addition is completed, simply enter the divisor into the keyboard and depress ÷ key.

$$95 + 24 + 75 + 94 \div 4 = 72$$

1. Automatic total on, automatic subtotal off--clear machine.
2. Enter all the numbers to be added with plus bar.
3. Enter divisor (4).
4. Depress ÷ key.
5. Sum (288) appears on tape.

   Divisor (4) appears under sum.

   Quotient (72) appears under divisor.

   Remainder (if any) appears under quotient.

You can see that this is very helpful in figuring averages.

There are many more operations within this machine's capacity that we will not be able to learn because of time limitation.

Negative Multiplication with Positive or Negative Balances

In the problem

$$(12 \times 25) - (3 \times 14) = 258$$

1. The automatic total should be on.
2. The automatic subtotal should be on.
3. Clear machine.

4. Enter 12 on keyboard.

5. Depress x key.

6. Enter 25 into keyboard.

7. Depress = key

8. Enter 3 into keyboard.

9. Depress x key.

10. Enter 14 into keyboard.

11. Depress negative multiplication key (the red key).

12. Read the answer (it is the difference between these 2 products).

Suppose the problem is turned around:

$$(3 \times 14) - (12 \times 25) = 258 \text{ Cr.}$$

The answer is the same except it is a credit balance.

In the problem

$$\frac{79 \times 15}{25} = 47 \text{ with a remainder of } 10$$

1. The automatic total and subtotal off.
2. Clear machine.
3. Perform the multiplication.
4. Depress the divisor (25) into the keyboard.
5. Depress the ÷ key.
6. The answer is 47 with a remainder of 10.

Division Followed by Other Calculations

The quotient is always automatically stored in memory so that any subsequent operations may be performed.

$$\frac{1725}{18} \times 29 = 2,755$$

1. The automatic total lever on and the automatic subtotal off.
2. Perform the division operation.
3. Enter multiplier (29) into keyboard.
4. Depress = key.

## To Follow Division by Division

$$\frac{1927}{25} \div 5 = 15 \text{ remainder of } 2$$

1. Perform the first division.
2. Depress memory output key and dividend entry key.
3. Depress second divisor into keyboard.
4. Depress ÷ key.

## To Follow Division by Addition (or Subtraction)

As in the example

$$\frac{1925}{25} + 55 = 132$$

1. Perform division.
2. Depress memory output and add key.
3. Depress 55 into keyboard.
4. Depress add key.
5. Depress total key.

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the Olivetti-Underwood ten-key calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

## VICTOR TEN-KEY CALCULATOR
## TAPE NO. 7

### Script for Tape No. 7 to Accompany Film No. 7

The ten-key printing calculator is a combination of the ten-key adding machine and the rotary calculator.

1. This machine automatically adds, subtracts, multiplies, and divides.
2. It has a credit balance feature that provides for true negative totals.
3. It has a printed tape which shows proof of all calculations.
4. It has 10 keys.

The middle row of keys--the 4, 5, and 6--is the home row. These keys have a rounded, indented surface and the other keys have a flat surface. The index finger controls the 7, 4, and 1. The middle finger controls the 8, 5, and 2, and the ring finger controls the 9, 6, and 3. The operational keys on the left are controlled by the index finger and operational keys on the right by the little finger. The zero bar is operated by the thumb.

In this film, you will be shown how to work each type of problem that you will be working in your workbook, and you will be shown finger techniques. You have your machine in front of you, and I suggest that you work these problems with me.

Let's begin with simple addition.

First, total the machine, using the little finger to depress the total bar. Always do this before any calculation, because any numbers previously entered into the machine will alter your answer. Notice the "T" on your tape. This indicates that the machine is clear.

It is very important that you develop the touch control at the very beginning of your instruction. The beginning exercises in your workbook will be designed to help you master touch control. Hold a pencil loosely by your thumb with the point facing to the right. With practice the awkward feeling will disappear and your speed will be increased since the pencil, with a snap of the finger, is in position to record the answer.

To set a number on the machine, read the number from left to right. For example, we will add 45 and 56 = 101. First, position the automatic control lever on + or - position. Depress the four and the five; then tap the plus bar, which is also the total bar. Depress the five and the six. Notice the column indicator which indicates the number of digits indexed on the keyboard, then depress the plus bar. Depress the total bar, which is also the plus bar, and read the sum on the tape.

A decimal point is automatically printed on the tape because most figure work in offices involves dollars and cents. However, the decimal indicator, a sliding metal prong, is used to point off decimal points in division and multiplication, and when working with fractions, so the printed decimals should be disregarded unless adding and subtracting dollars and cents.

Let's get a subtotal and number the next problem number 34 with the non-add key. Depression of the non-add key will enter the desired digit or digits on the tape, but the number will not be added into the answer.

Problem No. 34 15
17
18
ST 50
45
37

132

1. Clear the machine by depressing the total bar.
2. Enter the number 34 by depressing the 3 and 4.
3. Tap the non-add key. (Notice the N beside 34 on the tape.)
4. Depress augend (15) into the keyboard.
5. Hit plus bar.
6. Depress the addend (17) into the keyboard.
7. Hit plus bar.
8. Depress the addend (18) into the keyboard.
9. Hit plus bar.
10. At this point to get a subtotal engage the subtotal key and tap plus bar.
11. Read the subtotal--50--on the paper tape.
12. Depress the 4th addend (45) into keyboard.
13. Hit plus bar.
14. Depress the 5th addend (37) into keyboard.
15. Hit plus bar.
16. To get a total, engage the total key and hit plus bar. Read total on tape--132.

To subtract, follow the addition steps except tap the minus (-) bar instead of the plus bar for the subtrahend.

1. Clear machine by depressing the total bar.
2. Enter minuend (65) into keyboard.
3. Hit plus bar.
4. Enter subtrahend (35) into keyboard.
5. Hit minus bar. (Notice that the subtrahend appears on the tape with a minus beside of it.)
6. Total.
7. Read remainder (30) on the tape.

$$\begin{array}{r} 65 \\ \underline{-35} \\ 30 \end{array}$$

Credit Balance

Let's subtract 65 from 30.

1. Total the machine.
2. Depress minuend (30) into the keyboard.
3. Tap plus bar.
4. Depress subtrahend (65) into the keyboard.
5. Tap minus bar.
6. Total
7. Notice that the difference is shown on the tape with a C sign beside it to indicate a credit balance.

There are two ways to correct a mistake.

1. To clear all the digits that have been depressed, operate the clear key. For example, suppose 544 were depressed, and 455 should have been depressed. Notice the 3 in the column indicator. Depress the clear key, and all three digits are cleared. Notice the column indicator. Now depress correct entry - 455.

2. If a number has been entered on the keyboard and added into the machine, the same number can be entered on the keyboard and subtracted.

3. Likewise, and incorrect number that has been subtracted can be added into the machine.

## The Repeat Key

On occasion, you might wish to add or subtract the same number several times. In this case, operate the repeat key instead of the plus bar.

7.95
3.22
3.22
3.22
3.22

20.83

1. Total.

2. Enter 7.95 with plus bar.

3. Depress 3.22 into keyboard and hold down the repeat key until the number has printed 4 times on the tape.

4. Total and read sum, 20.83.

The twirler knob is used to space the tape or when loading a new roll of tape.

## Multiplication

Multiplication is automatic. The larger number should be indexed into the keyboard regardless of the way it is written.

The total is obtained automatically when automatic lever is engaged.

For example, in the problem 24 x 175, the following steps should be used.

[redacted]

1. Position the master control lever on x.
2. Index 175 on the keyboard.
3. Tap add bar.
4. Index 24 into the keyboard.
5. Tap add bar.
6. The product as shown on the tape is 4,200.
7. Notice the x on the tape to indicate multiplication.

Automatic Subtotal Lever

A subtotal in multiplication will print automatically when the automatic subtotal lever is in position. This permits the accumulation of products. For example, in this problem:

75 x 94
81 x 124
42 x 305
19 x 728 - Return automatic total to on position.
43,736

Return automatic total to on position before final multiplication operation. Notice that there is an automatic subtotal after every multiplication operation.

Multiplication of Decimals

Decimal places are pointed off the same as in paper-and-pencil multiplication; that is, the sum of the decimal places in the multiplier and the multiplicand is pointed off in the product.

For example: 17.95 x 3.5 = 62.825
2 + 1 = 3 decimal places

When decimals occur in accumulative multiplication, the same number of decimal places in each multiplication must be maintained. This can be done by adding zeros to either the multiplier or multiplicand.

4.75 x 4.25
1.5 x 15.21
75 x 4.5
.15 x 20

383.5025

The largest number of decimal places in the product of the individual multiplications will be four (4.75 x 4.25), so let's mark off four decimal places with movable decimal indicator.

Remember to put automatic subtotal lever in on position.

Depress 475 into keyboard.

Depress plus bar.

Depress 425 onto the keyboard.

Depress plus bar.

Depress 150 onto keyboard to maintain four decimal places.

Depress plus bar.

Depress 1521 into keyboard.

Depress plus bar.

Depress 75000 into keyboard to maintain four decimal places.

Depress plus bar.

Depress 45 into keyboard.

Depress plus bar.

Return automatic total to on position.

Depress 1500 onto keyboard to maintain four decimal places.

Depress plus bar.

Depress 20 onto keyboard.

Depress plus bar.

Read the total of the products, 383.5025.

NOTE:

If the plus bar is accidentally pressed a second time after entering the first multiplication or division, the machine will run continuously. By holding the STOP BUTTON down, the machine will stop, permitting the entering of the second factor and completion of the problem.

A constant is any number used over and over again in one set of problems. In multiplication, the constant is the multiplicand (the first number entered on the keyboard) and is multiplied any number of times by other numbers.

In this example, 250 is the constant.

175 x 250 = 43,750
325 x 250 = 81,250
495 x 250 = 123,750

1. Master control on X.
2. Move constant lever to expose C in window.
3. Index 250 into keyboard.
4. Tap plus bar.
5. Index 175 onto keyboard.
6. Tap plus bar.
7. Read total 43,750 on the tape, and notice the multiplicand appears on tape ready for next operation.
8. Index 325 onto the keyboard.

9. Tap plus bar.
10. Read total 81,250 on the tape.
11. Return constant lever to normal position before working the last problem in a series.
12. Index 495 onto keyboard.
13. Tap plus bar.
14. Read answer (123,750) on the tape.

### Division

Division is automatic, and factors are entered as they are read.

$$175 \div 25 = 7$$

1. Automatic control lever on divide.
2. Automatic total on.
3. Enter 175 into keyboard.
4. Depress plus bar.
5. Enter 25 on keyboard.
6. Depress plus bar.
7. The answer is 7.

$$177 \div 25 = 7 \ \frac{2}{25}$$

Let's do the same problem again except change the dividend to 177.

1. Total machine.
2. Enter 177 into keyboard.
3. Depress plus bar.
4. Depress 25 on keyboard.
5. Depress plus bar.
6. Read answer on tape--7 with remainder of 2.

## Decimals in Division

The number of decimals in the quotient is always equal to the number of decimal places in the dividend less the number of decimal places in the divisor.

1. If dividend is larger than the divisor, for whole numbers, add as many zeros to dividend as decimal places are required in quotient. To carry the quotient two places, add two zeros. Enter 17700 into keyboard; depress plus bar; enter 25 into keyboard; depress plus bar. The answer is 7.08.

   In the problem:

   $$75.4321 \div 5.423 = 13.9$$

   you would have one decimal place in the quotient because 3 decimal places in the divisor subtracted from 4 decimal places in the dividend = 1. However, if you add two zeros to dividend, you will have 3 decimal places in quotient because 6 minus 3 = 3.

   $$75.432100 \div 5.423 = 13.909$$

2. If the dividend is smaller than the divisor, add as many zeros to the dividend as there are digits in divisor (whole numbers or decimals). Then subtract the number of decimal places in divisor from number in dividend to find out how many places to mark off. In the problem: 21.95 ÷ 375.7 add 4 zeros to the dividend, and you will have 5 decimal places in the quotient; that is, 6 in the dividend minus 1 in the divisor.

## Constant Division

Suppose you wanted to find what percentage 80 days is of a year, or 100 days, or 165 days.

Add 2 zeros to each variable; that is to 80, to 100, and to 165, and use 365 as the constant divisor.

1. Master control lever on divide.
2. Move constant lever down to expose C in window.
3. Index 8,000 into keyboard.
4. Tap plus bar.
5. Index 365 into keyboard.
6. Tap plus bar.
7. Read answer 21%.
8. Index 10,000 into keyboard.
9. Tap plus bar.
10. Read answer 27%.
11. Before working the last problem of a series, return constant lever to normal position.
12. Index 165000 into keyboard.
13. Tap plus bar.
14. Read answer--45%.

NOTE: The 2 zeros are added to 80, 100, and 165 to get 2 decimal places in the quotient. To change a decimal to a percent, move the decimal point 2 places to the right and add a percent sign.

Sums, products, and differences can be transferred without re-entering and can then be multiplied or divided. This is done with the use of the total transfer button.

To follow addition or subtraction by multiplication as in the following problem:

$$(94 + 24 + 75) \times 4 = 772$$

1. Clear the machine.
2. Master control lever set for addition.
3. Engage automatic total.
4. Index and list all addends--94, 24, and 75.

5. Set master control lever for multiplication.
6. Press total transfer button.
7. Tap the add bar.
8. Enter 4 on the keyboard.
9. Tap the add bar.
10. Read answer 772 on tape.

To follow addition or subtraction by division as in the problem:

$$(95 + 24 + 75 + 94) \div 4 =$$

1. Clear machine.
2. Program master control lever for addition.
3. Engage automatic total.
4. Index and list addends (95 + 24 + 75 + 94).
5. Master control lever on divide.
6. Press total transfer button.
7. Tap plus bar.
8. Index 4 and tap plus bar.
9. Read answer 72.

Multiplying Three Factors

$$15 \times 75 \times 105 = 118{,}125$$

1. Clear machine.
2. Engage automatic subtotal.
3. Master control lever on multiply.
4. Index and list first two factors 15 and 75.
5. Press total transfer button.

6. Tap plus bar.
7. Index and list third factor 105.
8. Tap plus bar.
9. Read answer 118,125.

## Multiplication Followed By Division

$$\frac{79 \times 15}{25} = 47$$

1. Clear machine.
2. Program master control lever to multiply.
3. Engage automatic subtotal.
4. Index and list 79 and 15.
5. Move master control lever to divide.
6. Press total transfer button.
7. Tap plus bar.
8. Index and list 25.
9. Read answer 47.

We have covered all the instructions necessary to add, subtract, multiply and divide. At this point, you should go back to the workbook and work the problems for the ten-key calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

## VICTOR FULL KEYBOARD ADDING-LISTING MACHINE
## TAPE NO. 8

A separate key for each digit 1 through 9 is one of the features of the full keyboard adding-listing machine. The number of banks of keys; that is, vertical rows, determines the capacity of the machine.

The first column from the right is for units, the second for tens, and the third for hundreds, etc.

Although the touch system cannot be used on the full keyboard adding-listing machine, the operation is facilitated by simultaneous depression of the keys and the plus bar, which is controlled by the little finger.

A time-saving feature is the automatic entry of the zero.

1. Use the thumb to depress adjacent keys. For example:

22
44

55
77

2. Use the first and second fingers to depress keys near each other. For example:

56

34

45

23

3. Use the thumb and the middle finger when numbers are farther apart. For example:

25

52

36

63

17

81

61

4. For three-digit numbers, use either the thumb and first and second fingers, or the first, second, and third fingers, depending upon which is more comfortable. For 223, use the first, second, and third fingers. For 156, use the thumb, first, and second fingers.

5. Use two hand motions to depress four-digit numbers. For example:

69.45

35.99

78.31

19.25

6. Use three hand motions to depress five- or six-digit numbers.

478.942

784.376

192.145

Try to read numbers at a quick glance. Avoid splitting numbers into sections for reading.

Let's begin with simple addition:

First total the machine, using the little finger to depress the "T" bar. Always do this before any calculation, because any numbers previously entered into the machine will alter your answer. Notice the "T" on your tape. This indicates that the machine is clear.

45 + 56 = 101

1. Simultaneously enter 45 into keyboard with first and second finger. Tap plus bar with little finger. Notice that the total bar is also the plus bar.
2. Simultaneously enter 56 into keyboard with first and second fingers and tap plus bar with little finger.
3. Total with total bar and read sum on the tape which shows proof of all calculations.

Let's get a subtotal and number the next problem number 34 with the non-add key. Depression of the non-add key will enter the desired digit or digits on the tape, but the number will not be added into the answer.

Problem No. 34. 15
17
18
ST 50
45
67

162

1. Clear the machine by depressing the T key.
2. Enter the number 34 by depressing the 3 and 4 simultaneously.
3. Tap the non-add key.
4. Depress augend (15) into the keyboard and hit plus bar.
5. Depress the addend (17) into the keyboard and hit plus bar.
6. Depress the addend (18) into the keyboard and hit plus bar.
7. At this point to get a subtotal depress the ST bar.
8. Read the subtotal--50--on the paper tape.
9. Depress the fourth addend (45) into keyboard and hit plus bar.
10. Depress the fifth addend (67) into keyboard and hit plus bar.
11. Total 162.

To subtract, follow the addition steps except tap the minus (-) bar instead of the plus bar for the subtrahend.

1. Clear machine by depressing the T bar.
2. Enter minuend (65) into keyboard and hit plus bar.
3. Enter subtrahend (35) into keyboard and hit minus bar.
4. Notice that the subtrahend appears on the tape in red with a minus sign beside of it.
5. Total.
6. Read remainder (30) on the tape.

$$\begin{array}{r} 65 \\ \underline{-35} \\ 30 \end{array}$$

Credit Balance

Let's subtract 65 from 30.

1. Total the machine.
2. Depress minuend (30) into the keyboard and tap plus bar.
3. Depress subtrahend (65) into the keyboard and tap minus bar.
4. Total.
5. Notice that the difference is shown on the tape in red with a C sign beside it to indicate a credit balance.

There are two ways to correct a mistake.

1. To clear all the digits that have been depressed, depress the clear key. For example, suppose 544 were depressed, and 455 should have been depressed. Depress the clear key, and all three digits are cleared. Now depress correct entry--455.
2. If a number has been entered on keyboard and added into the machine, the same number can be entered on the keyboard and subtracted.
3. Likewise an incorrect number that has been subtracted can be added into the machine.

## The Repeat Key

On occasion, you might wish to add or subtract the same number several times. In this case, engage the repeat key to lock the number into the keyboard.

1. Total.
2. Enter 7.95 with plus bar.
3. Engage repeat key.
4. Depress 3.22 into keyboard and tap plus bar four times.
5. Disengage repeat key.
6. Clear keyboard.
7. Total.

7.95  
3.22  
3.22  
3.22  
3.22  
______  
20.83

A decimal point is automatically printed on the tape, but is should be ignored unless the answer requires a decimal in that position.

The decimal indicator, a sliding metal prong, is used to point off decimal points in division and multiplication, and when working with fractions.

The twirler knob is used to space the tape or when loading a new roll of tape.

Multiplication is performed by using repeated addition. The larger number should be indexed into the keyboard regardless of the way it is written.

For example, in the problem 24 x 175, the following steps should be used:

1. Index 175 on the keyboard.
2. Engage repeat key.
3. Tap add bar four times.
4. Clear keyboard with clear key.
5. Index 1750 on the keyboard (this moves the amount over 1 column).
6. Tap add bar 2 times.
7. Clear keyboard with clear key.
8. Disengage repeat key.
9. Total.
10. The product as shown on the tape is 4,200.

Another and perhaps simpler way to multiply is to depress the multiplicand into the keyboard and keep it depressed while the plus bar is tapped with the little finger the necessary amount of times.

In the problem 30.5 x 3.02.

1. Depress 305 into the keyboard and tap the plus bar 2 times.
2. Depress 30500 into the keyboard and tap plus bar 3 times.

(Remember that the zero is entered automatically.)

Note also that when a zero appears in the multiplier, do not depress the add bar in that column, but move the amount over another column.

3. Read the product on the tape.
4. Decimal places are pointed off the same as in paper and pencil multiplication; that is, sum of the decimal places in the multiplier and the multiplicand is pointed off in the product. So the product is 92.110 or 92.11 since the zero adds nothing to the answer and is dropped.

## Short-Cut Multiplication

Multiplying 2.38 x 378 by simple multiplication requires 18 operations. However, with short-cut multiplication the number of operations is reduced to 8. Here is the rule for short-cut multiplication.

When a digit in the multiplier is greater than 5, repeat subtract the multiplicand the number of times equal to the difference between that digit and 10; then, carry 1 to the next left-hand digit.

1. Hold 2.38 in the keyboard and tap the minus bar 2 times. (Sometimes both hands must be used unless the repeat key is depressed.)
2. Hold 2380 in the keyboard and tap minus bar 2 times.
3. Depress 23800 into keyboard and tap the plus bar 4 times.

The total product is 899.64.

## Division

Division is performed by multiplying the dividend by the reciprocal of the divisor.

A reciprocal of a number is the result of dividing that number into one. For example, in the problem

$$175 \div 15 = 7$$

the reciprocal of 25 is .04--25 divided into 1.00. A chart of reciprocals will be found in the back of your workbook.

1. Hold 175 into keyboard and tap plus bar 4 times.
2. Read quotient, being sure to mark off the two decimal places in the reciprocal.

## Division Containing Fractions

Fractions must be converted to decimal equivalents.

To find the reciprocal of a number containing a fraction:

$125.5 \div 10\ 1/2$:

1. Convert the fraction to a decimal: that is 10 1/2 equals 10.5.
2. Find the reciprocal of 105 in the table of reciprocals at the back of your workbook, and move the decimal point one place to the right; that is .00952 to .0952.
3. Multiply 125.5 by .0952.
4. Mark off 5 decimal places (1 in the multiplicand, formerly the dividend, and 4 in the multiplier, formerly the divisor).
5. The quotient is 11.9476.

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the full-keyboard adding-listing machine. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

## VICTOR TEN-KEY ADDING-LISTING MACHINE
## TAPE NO. 9

The ten-key adding machine is one of the most popular because over half of all figure work in the average office is made up of problems of addition. Multiplication and division can be performed, but not automatically as on a calculator.

It has a credit balance feature that provides for true negative totals.

It has a printed paper tape which shows proof of all calculations.

It has ten keys.

The middle row of keys--the 4, 5, and 6--is the home row. These keys have a rounded, indented surface and the other keys have a flat surface. The index finger controls the 7, 4, and 1. The middle finger controls the 8, 5, and 2, and the ring finger controls the 9, 6, and 3. The operational keys on the left are controlled by the index finger, and the operational keys on the right by the little finger. The zero bar is operated by the thumb.

In this film, you will be shown how to work each type of problem that you will be working in your workbook, and you will be shown proper finger techniques. You have your machine in front of you, and I suggest that you work these problems with me.

Let's begin with simple addition.

First, total the machine, using the little finger to depress the "T" bar. Always do this before any calculation, because any numbers previously entered into the machine will alter your answer. Notice the "T" on your tape. This indicates that the machine is clear.

It is very important that you develop the touch control at the very beginning of your instruction. The beginning exercises in your workbook will be designed to help you master touch control. Hold a pencil loosely by the thumb with the point facing to the right. With practice the awkward feeling will disappear, and your speed will be increased since the pencil, with a snap of the finger, is in position to record the answer.

To set a number on the machine, read the number from left to right. For example, we will add 45 and 56 = 101. Depress the four and the five--then tap the plus bar, which is also the total bar. Depress the five and the six. Notice the column indicator which indicates the number of digits indexed on the keyboard. Then depress the plus bar. Then depress the total bar and read the sum on the tape.

A decimal point is automatically printed on the tape because most figure work in offices involves dollars and cents. Disregard it unless the answer has two decimals in it. However, the decimal indicator, a sliding metal prong, is used to point off decimal points in division and multiplication and when working with fractions.

Let's get a subtotal and number the next problem number 34 with the non-add key. Depression of the non-add key will enter the desired digit or digits on the tape, but the number will not be added into the answer.

Problem No. 34 15
17
18
ST 50
45
67

162

1. Clear the machine by depressing the T key.
2. Enter the number 34 by depressing the 3 and 4.
3. Tap the non-add key.
4. Depress augend (15) into keyboard.
5. Hit plus bar.
6. Depress the addend 17 into the keyboard.
7. Hit plus bar.
8. Depress the addend 18 into the keyboard.
9. Hit plus bar.
10. At this point to get a subtotal depress the ST key.
11. Read the subtotal--50--on the paper tape.
12. Depress the fourth addend (45) into the keyboard.
13. Hit plus bar.
14. Depress the fifth addend (67) into keyboard.
15. Hit plus bar.
16. Total 162.

To subtract, follow the addition steps except tap the minus (-) bar instead of the plus bar for the subtrahend.

1. Clear machine by depressing the T key.
2. Enter minuend (65) into keyboard.
3. Hit plus bar.
4. Enter subtrahend (35) into keyboard.
5. Hit minus bar. (Notice that the subtrahend appears on the tape in red with a minus sign beside of it.)
6. Total.
7. Read remainder (30) on the tape.

$$\begin{array}{r} 65 \\ \underline{-35} \\ 30 \end{array}$$

## Credit Balance

Let's subtract 65 from 30.

1. Total the machine.
2. Depress minuend (30) into keyboard.
3. Tap plus bar.
4. Depress subtrahend (65) into keyboard.
5. Tap minus bar.
6. Total.
7. Notice that the difference is shown on the tape in red with a C sign beside it to indicate a credit balance.

There are two ways to correct a mistake.

1. To clear all the digits that have been depressed, depress the clear key. For example, suppose 544 were depressed, and 455 should have been depressed. Notice the three in the column indicator. Depress the clear key, and all three digits are cleared. Notice the column indicator. Now depress correct entry--455.
2. If a number has been entered on keyboard and added into the machine, the same number can be entered on the keyboard and subtracted.
3. Likewise, an incorrect number that has been subtracted can be added into the machine.

## The Repeat Key

On occasion, you might wish to add or subtract the same number several times. In this case, engage the repeat key to lock the number into the keyboard.

```
 7.95
 3.22
 3.22
 3.22
 3.22
-----
20.83
```

Total.

Enter 7.95 with plus bar.

Engage repeat key.

Depress 3.22 into keyboard and tap plus bar four times.

Disengage repeat key.

Clear keyboard and total.

The twirler knob is used to space the tape or when loading a new roll of tape.

Multiplication is performed by using repeated addition. The larger number should be indexed into the keyboard regardless of the way it is written.

For example, in the problem 24 x 175, the following steps should be used.

1. Index 175 on the keyboard.
2. Engage repeat key.
3. Tap add bar four times.
4. Tap zero key. (This moves the amount over one column.)
5. Tap add bar two times.
6. Clear keyboard with correction key.
7. Disengage repeat key.
8. Total.
9. The product as shown on the tape is 4,200.

When a zero appears in the multiplier, do not depress the add bar in that column. Move the amount over another column by depressing the zero key.

For example 10.75 x 3.02 = 32.465.

1. Enter 10.75 into the keyboard and engage the repeat key.
2. Tap the add bar two times.
3. Tap the zero key two times to move the amount over two columns because of the zero in the multiplier.
4. Tap the add bar three times.
5. Clear the keyboard, disengage the repeat key and total.
6. Read the product on the tape.
7. Decimal places are pointed off the same as in paper and pencil multiplication; that is, the sum of the decimal places in the multiplier and the multiplicand is pointed off in the product. So the product is 32.4650, or 32.465 since the zero adds nothing to the answer and is dropped.

## Short-Cut Multiplication

Multiplying 2.38 x 378 by simple multiplication requires 18 operations. However, with short-cut multiplication, the number of operations is reduced to eight. Here is the rule for short-cut multiplication.

When a digit in the multiplier is greater than 5, repeat subtract the multiplicand the number of times equal to the difference between that digit and 10; then, carry 1 to the next left-hand digit.

1. Enter 2.38 into keyboard, engage repeat key, and depress minus bar two times.
2. Depress zero key to move multiplicand one column to the left.
3. Depress the minus bar two times.

4. Depress zero key to move multiplicand one column to the left.
5. Depress plus bar four times.
6. Disengage repeat key and clear machine.
7. Total: product is 899.64.

Accumulative Multiplication

To perform accumulative multiplication, complete all the operations necessary for simple multiplication. You may subtotal after each part of the problem is that information is desirable. Otherwise, total only after the final operation.

For example, in the problem.

75 x 94
81 x 124
42 x 305
19 x 728

43,736

1. Index 94 into the keyboard since it is the larger of the two numbers.
2. Engage repeat key.
3. Multiply by 75.
4. Clear keyboard.
5. Index 81 into the keyboard.
6. Multiply by 124.
7. Clear keyboard.
8. Index 305 into the keyboard.
9. Multiply by 42.
10. Clear keyboard.
11. Index 728 into keyboard.

12. Multiply by 19.
13. Clear machine.
14. Total.
15. The total of the products is 43,736.

## Negative Multiplication

To perform negative multiplication, multiply the first part of the problem by the positive method without totaling. Multiply the second part of the problem by the negative method. The answer will be the difference between the two products.

For example:

(4 x 251) - (3 x 89)

1. Engage repeat key.
2. Depress 251 into keyboard.
3. Multiply by 4.
4. Clear keyboard.
5. Depress 89 into keyboard.
6. Multiply by 3 with minus bar.
7. Clear machine.
8. Total.
9. The difference is 737.

## Multifactor Multiplication

To multiply three or more factors, the product of the first operation is multiplied by the third factor.

For example:

$$15 \times 75 \times 105 = 118{,}125$$

1. Engage repeat key.
2. Depress 75 into keyboard.
3. Multiply by 15.
4. Clear keyboard.
5. Total.
6. Depress the product 1,125 into keyboard.
7. Multiply by 105.
8. Clear keyboard.
9. Total.
10. The product is 118,125.

Division is performed by multiplying the dividend by the reciprocal of the divisor.

A reciprocal of a number is the result of dividing that number into 1.

1. For example, in the problem:

$$175 \div 25 = 7$$

the reciprocal of 25 is .04--25 divided into 1.00. A chart of reciprocals will be found in the back of your workbook.

1. Depress 175 into keyboard.
2. Engage repeat key.
3. Tap plus bar four times.
4. Disengage repeat key.
5. Clear keyboard.
6. Read quotient, being sure to mark off the two decimal places in the reciprocal.

## Division Containing Fractions

Fractions must be converted to decimal equivalents.

To find the reciprocal of a number containing a decimal:

125.5 ÷ 10 1/2

1. Convert the fraction to a decimal; that is, 10 1/2 equals 10.5.
2. Find the reciprocal of 105 in the table of reciprocals at the back of your workbook, and move the decimal point one place to the right; that is, .00952 to .0952.
3. Multiply 125.5 by .0952.
4. Mark off 5 decimal places (1 in the multiplicand, formerly the dividend, and 4 in the multiplier, formerly the divisor).
5. The quotient is 11.9476.

Since the ten-key adding-listing machine is operated by touch and since the machine is used primarily for addition, your level of skill will be determined by the mastery of the touch system.

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the ten-key adding-listing machine. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

## BURROUGHS TEN-KEY ADDING-LISTING MACHINE
## TAPE NO. 10

The ten-key adding-listing machine is one of the most popular because over half of all figure work in the average office is made up of problems of addition. Multiplication and division can be performed, but not automatically as on a calculator.

It has a credit balance feature that provides for true negative totals.

It has a printed paper tape which shows proof of all calculations.

It has ten keys.

The middle row of keys--the 4, 5, and 6--is the home row. These keys have a rounded, indented surface, and the other keys have a flat surface. The index finger controls the 7, 4, and 1. The middle finger controls the 8, 5, and 2; and the ring finger controls the 9, 6, and 3. The operational keys on the right are controlled by the little finger, and the operational keys on the left by the index finger. The zero bar is operated by the thumb.

In the film, you will be shown how to work each type of problem that you will be working in your workbook, and you will be shown proper finger techniques. You have your machine in front of you, and I suggest that you work these problems with me.

Let's begin with simple addition.

1. First, total the machine using the little finger to depress the "TOT" key. Always do this before any calculation, because any numbers previously entered into the machine will alter your answer. Notice the asterisk on your tape. This indicates that the machine is clear.

It is very important that you develop the touch control at the very beginning of your instruction. The beginning exercises in your workbook will be designed to help you master touch control. Hold a pencil loosely with your thumb and the point facing to the right. With practice, the awkward feeling will disappear, and your speed will be increased since the pencil, with a snap of the finger, is in position to record the answer.

2. Place your index, middle, and ring fingers on the 4, 5, and 6. The plus bar is depressed with the little finger.

3. To set a number on the machine, read the number from left to right. For example, we will add 45 and 56 = 101. Depress the 4 and the 5--then tap the plus bar; depress the 5 and the 6. Notice the column indicator which indicates the number of digits indexed on the keyboard; then depress the plus bar. Then depress the total key, and read the sum 101 on the tape.

A decimal point is automatically printed on the tape because most figurework in offices involves dollars and cents. Disregard it unless your answer should have two decimals in it. However, decimal points will have to be pointed off manually when working with fractions or when performing multiplication and division.

Let's get a subtotal and number the next problem, which is number 34, with the non-add key. Depression of the non-add will enter the desired digit or digits on the tape, but the number will not be added into the answer.

Problem No. 34.
15
17
18
50
45
67

162

[redacted]

1. Clear machine by depressing the T key.
2. Enter the number 34 by depressing the 3 and the 4.
3. Tap the non-add key.
4. Depress augend 15 into keyboard.
5. Hit plus bar.
6. Depress the addend 17 into the keyboard.
7. Hit plus bar.
8. Depress the addend 18 into the keyboard.
9. Hit plus bar.
10. At this point to get a subtotal depress the ST key.
11. Read the subtotal--50--on the paper tape.
12. Depress the 4th addend 45 into keyboard.
13. Hit plus bar.
14. Depress the 5th addend 67 into the keyboard.
15. Hit plus bar.
16. Total 162.

To subtract, follow the addition steps except tap the minus (-) key instead of the plus bar for the subtrahend.

1. Clear machine by depressing the T key.
2. Enter minuend 65 into keyboard.
3. Hit plus bar.
4. Enter subtrahend 35 into keyboard.
5. Hit minus key (notice that the subtrahend appears on the tape with a minus sign beside it).
6. Total
7. Read remainder 30 on the tape.

$$\begin{array}{r} 65 \\ \underline{-35} \\ 30 \end{array}$$

Credit Balance

Let's subtract 65 from 30.

1. Total the machine.

2. Depress minuend 30 into the keyboard.

3. Tap plus bar.

4. Depress subtrahend 65 into the keyboard.

5. Tap minus bar.

6. Total.

7. Notice that the difference is shown on the tape with a minus sign beside it to indicate a credit balance.

There are two ways to correct a mistake.

1. To clear all digits that have been depressed, depress the clear key. (It has an E on it.) For example, suppose 544 were depressed, and 455 should have been depressed. Notice the column indicator. Depress the clear key, and all digits are cleared. Now depress correct entry--455.

2. If a number has been entered on keyboard and added into the machine, the same number can be entered on the keyboard and subtracted.

3. Likewise, an incorrect number that has been subtracted_can be added into the machine.

The Repeat Key

On occasion, you might wish to add or subtract the same number several times. In this case, plus the number into the keyboard with the X key which automatically locks the number into the machine until the total key is hit, which automatically clears the machine, or until the clear key is depressed.

7.95
3.22
3.22
3.22
3.22

20.83

Total.

Enter 7.95 with plus bar.

Index 3.22 into keyboard.

Hit X key 4 times.

Total.

The twirler knob is used to space the tape or when loading a new roll of tape.

Multiplication is performed by using repeated addition. The larger number should be indexed into the keyboard, regardless of the way it is written.

For example, in the problem 24 x 175, the following steps should be used:

1. Index 175 on the keyboard.
2. Tap the X key 4 times.
3. Tap zero key (this moves the amount over 1 column).
4. Tap the X key 2 times.
5. Total.
6. The product as shown on the tape is 4,200.

When a zero appears in the multiplier, do not depress the add bar in that column. Move the amount over another column by depressing the zero key. For example: 10.75 x 30.2 = 324.65.

1. Enter 1075 into the keyboard.
2. Tap the X key 2 times.
3. Tap the zero key two times to move the amount over two columns because of the zero in the multiplier.
4. Tap the X key 3 times.
5. Total.
6. Read the product on the tape.
7. Decimal places are pointed off the same as in paper and pencil multiplication; that is, the sum of the decimal places in the multiplier and in the multiplicand is pointed off in the product. So the product is 324.650, or 324.65 since the zero adds nothing to the answer and is dropped.

## Short-Cut Multiplication

Multiplying 2.38 x 378 by simple multiplication requires 18 operations. However, with short-cut multiplication the number of operations is reduced to 8. Here is the rule for short-cut multiplication: When a digit in the multiplier is greater than 5, repeat subtract the multiplicand the number of times equal to the difference between that digit and 10, then carry 1 to the next left-hand digit.

1. Enter 2.38 into the keyboard.
2. Depress minus bar and repeat key simultaneously 2 times.
3. Depress zero key to move multiplicand 1 column to the left.
4. Depress minus bar and repeat key simultaneously 2 times.
5. Depress zero key to move multiplicand 1 more column to the left.
6. Depress repeat key until amount prints 4 times.
7. Total-product is 899.64.

## Accumulative Multiplication

To perform accumulative multiplication, complete all the operations necessary for simple multiplication.

You may subtotal after each part of the problem if that information is desirable. Otherwise, total only after final operation.

For example, in the problem:

75 x 94
81 x 124
42 x 305
19 x 728

43,736

1. Index 94 into the keyboard since it is the larger of the two numbers.
2. Multiply by 75.
3. Clear keyboard.
4. Index 81 into the keyboard.
5. Multiply by 124.
6. Clear keyboard.
7. Index 305 into the keyboard.
8. Multiply by 42.
9. Clear keyboard.
10. Index 728 into keyboard.
11. Multiply by 19.
12. Total.
13. The total of the products is 43,736.

## Negative Multiplication

To perform negative multiplication, multiply the first part of the problem by the positive method without totaling. Multiply the second part of the problem by the negative method. The answer will be the difference between the two products.

For example:

(4 x 251) - (3 x 89) =

1. Depress 251 into keyboard.
2. Multiply by 4.
3. Clear keyboard.
4. Depress 89 into keyboard.
5. Multiply by 3 with the x and minus bar.
6. The difference is 737.

## Multifactor Multiplication

To multiply three or more factors, the product of the first operation is multiplied by the third factor.

For example:

15 x 75 x 105 = 118,125

1. Depress 75 into keyboard.
2. Multiply by 15.
3. Total.
4. Depress the product 1,125 into keyboard.
5. Multiply by 105.
6. The product is 118,125.

## Division

Division is performed by multiplying the dividend by the reciprocal of the divisor.

A reciprocal of a number is the result of dividing that number into 1.

For example, in the problem:

$$175 \div 25 = 7$$

The reciprocal of 25 is .04--25 divided into 1.00. A chart of reciprocals will be found in the back of your workbook.

1. Depress 175 into keyboard.
2. Tap the x key 4 times.
3. Total.
4. Read quotient 7, being sure to mark off the 2 decimal places in the reciprocal.

## Division Containing Fractions

Fractions must be converted to decimal equivalents.

To find the reciprocal of a number containing a fraction:

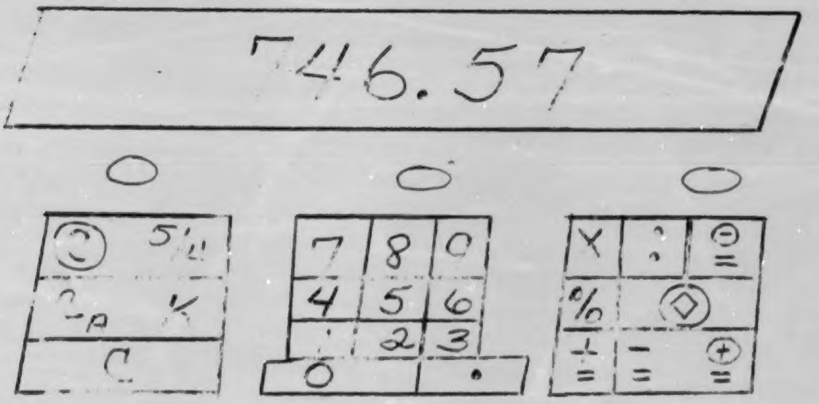
1. Convert the fraction to a decimal; that is, 10 1/2 equals 10.5 in the problem 125.5 ÷ 10 1/2.
2. Find the reciprocal of 105 in the table of reciprocals at the back of your workbook, and move the decimal point 1 place to the right; that is, .00952 to .0952.
3. Multiply 125.5 by .0952.
4. Mark off 5 places (1 in the multiplicand, formerly the dividend, and 4 in the multiplier, formerly the divisor).
5. The quotient is 11.9476.

Since the ten-key adding-listing machine is operated by touch and since the machine is used primarily for addition, your level of skill will be determined by the mastery of the touch system.

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the ten-key adding-listing machine. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

THE ELECTRONIC CALCULATOR

Tape No. 11


746.57
7
8
9
4
5
6
1
2
3
0
.
C
K
X
%

Olympia CD 400

THE LATEST THING IN BUSINESS EQUIPMENT

[redacted]

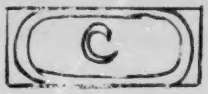
The electronic calculator will do everything--well, almost everything. Would you believe that it is noisless? ? ? ?

Switching-on and-off is done by the rocker switch at the front side underneath the machine.

When the calculator is switched on, the yellow pilot light will be illuminated and a zero with the decimal point in the zero position is seen on the display register. Now the calculator is ready for calculating.

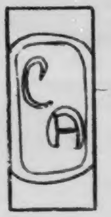
The middle row of keys--the 4, 5, and 6,--is the home row. The 5 has a raised number on it to help you locate the home row without looking. The index finger controls the 7, 4, and 1. The middle finger controls the 8, 5, and 2, and the ring finger controls the 9, 6, and 3. The operational keys on the left are controlled by the index finger and the operational keys on the right by the little finger. The zero bar is operated by the thumb.

It is very important that you develop the touch control at the very beginning of your instruction. The beginning exercises in your workbook are designed to help you master touch control. Hold a pencil loosely by your thumb with the point facing to the right. With practice, the ackward feeling will disappear and your speed will be increased since the pencil, with a snap of the finger, is in position to record the answer.

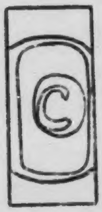


The display clear key has two functions:

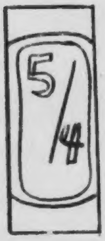
1. To clear the display register
2. To set fixed decimal points by simultaneously depressing this key with the key designating the number of decimal points desired. For example, to work to two decimal points, depress the "C" and the 2 keys simultaneously. The decimals are entered in the proper sequence by depressing the decimal key. For example: 58.78.



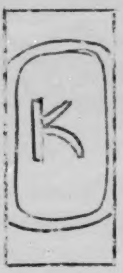
The $C_A$ clear key clears the display register and the arithmetic units.



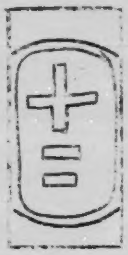
The storage clear key clears all of the accumulated values that have been entered into the memory.



The 5/4 key rounds off automatically all products and quotients when depressed



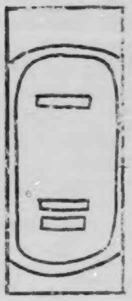
When the constant key is depressed, the second factor in multiplication or divison (that is, the multiplier or divisor) and its arithmetic functions (that is, to divide or to multiply) is retained as a constant.



The plus/result key or plus/equal has two functions.

1. The plus key and result key for addition.

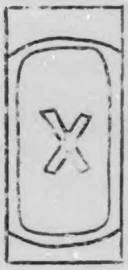
2. The positive result key for multiplication and division.



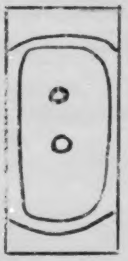
Likewise, the minus/result key or minus/equal has two functions.

1. The minus key and result key for subtraction.

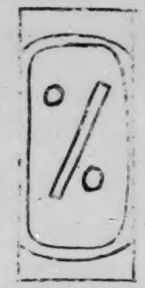
2. The negative result key for multiplication and division.



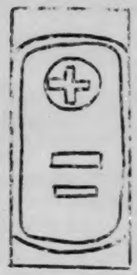
The multiplication key is used to enter the first factor in multiplication (that is, the multiplicand).



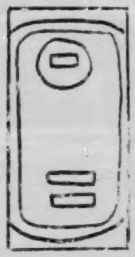
The division key is used to enter the first factor in division (that is, the dividend).



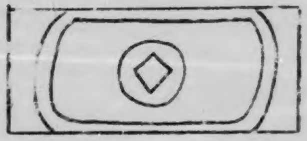
The percentage key is used for percentage calculations. So, all of you who can't remember to move the decimal place two places to the right to change a decimal to a percentage can relax. That is, if you can remember to depress the percent key. When the percent key is depressed, the operation is automatic.



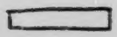
The positive storage entry key is used to store positive numbers for later recall and use.



The negative storage entry key is used to store negative numbers into the memory for later recall and use.



The storage recall key is used to recall storage contents into the display register while retaining the storage contents for further use.



The minus symbol identifies negative results in the display register.

The yellow indicator lamp denotes that the machine is switched on.

The green indicator lamp denotes that a value is held in the memory.

The red indicator lamp denotes the overflow of the 12-unit capacity. The calculator is ready for the calculation following the depression of the clear key for the arithmetic unit.

Let's review briefly the clear keys.

The C or display clear key is used to clear the display register only.

The clear key for the arithmetic unit, the $C_A$ clear key, is used to clear the display register and the arithmetic unit (that is, numbers that have already been entered into the machine).

The C storage clear key is used to clear all accumulated values from the memory.

# POST TEST

In the space provided, write one word that identifies the number beside the blank.

For example:

$$\begin{array}{r} 4 \\ \underline{+4} \\ 8 \end{array}$$ sum

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| 8 | ________ | A | 5 | ________ | D | 4 | ________ | G |
| -4 | ________ | B | x5 | ________ | E | +4 | ________ | H |
| 8 | ________ | C | 25 | ________ | F | 8 | sum |  |

3 x 4 = 12

________ I ________ J ________ K

25 ÷ 5 = 5

________ L ________ M ________ N

$$\begin{array}{r} \underline{\;6\;} \\ 4\,/\;25 \\ \underline{24} \\ 1 \end{array}$$

6 ________ P

O ________ 4 / 25 ________ Q

24

1 ________ R

## ANSWERS TO POST TEST

A. Minuend

B. Subtrahend

C. Remainder (sometimes called difference)

D. Multiplicand

E. Multiplier

F. Product

G. Augend

H. Addend

I. Multiplier

J. Multiplicand

K. Product

L. Dividend

M. Divisor

N. Quotient

O. Divisor

P. Quotient

Q. Dividend

R. Remainder

## DIRECTIONS

## POST TEST FOR ROTARY CALCULATOR

You will be allowed 35 minutes. Work quickly. Work each problem one time. If you finish in less than 35 minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Carry percentages out to two decimal places.
3. Round all products off to five decimal places.
4. Carry all division problems out to five places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers, such as Cr., %, etc.
7. Complete evaluation sheet.
8. Turn in time sheet.

# POST TEST FOR ROTARY CALCULATOR A-1

(1)
4.27
3.15
9.81
2.71
5.23
7.06
5.04
2.41
9.15
4.29

(2)
1.73
2.13
8.42
5.16
1.07
3.16
6.05
7.35
4.60
2.89

(3)
21.90
16.75
29.43
54.98
22.04
13.05
86.14
91.58
41.12
79.08

---

(4)
27.05
41.59
73.05
24.09
57.75
15.67
91.59
24.02
71.05
52.28

(5)
10.52
32.07
.32
365.55
2,104.61
14.98
52.60
27.17
407.90
1,230.17

(6)
16.87
- 3.47

(7)
77.42
- 20.91

(8)
357.93
- 17.05

(9)
406.82
- 720.52

(10)
374.42
-899.05

(11) 1198 + 457 =
592 + 457 =
981 + 457 =

(12) 541.5 x 14.08 =

(13) 47.3 x 17 =

(14) 89.3 x 23.3 =

(15) 19 x 133 x 407 =

(16) 18.2 x 1.05 x 16.4 =

(17) 185.54 ÷ 75.2 =

(18) 467.61 ÷ 12.22 =

(19) 442.57 ÷ 77 =

(20) Convert 321 feet to yards =

Rotary Calculator

(21) Convert 4,052 inches to feet =

(22) Accumulate:

14.15 x 74.253
3.02 x 4.12
84.3 x .13
506.02 x 2.53

| | Interest On: | Answers |
|---|---|---|
| (23) | $470.75 at 2 1/2% = | |
| (24) | $2,450.40 at 1 3/4% = | |
| (25) | $1,865.00 at 8% = | |
| (26) | $1,514.65 at 8 1/4% = | |

Find the percentage of Increase or Decrease

| | Previous | Current | Percentage + or - |
|---|---|---|---|
| (27) | 50,190 | 11,642 | |
| (28) | 13,790 | 17,305 | |
| (29) | 4,924 | 4,761 | |
| (30) | 9,653 | 7,500 | |
| (31) | 30,546 | 19,673 | |

Find the net amount of the following:

(32) $1,926.75 less 5%, 10%, 5% =

(33) $ 842.00 less 25%, 15%, 20% =

(34) $1,050.75 less 15%, 15%, 10% =

KEY

# POST TEST FOR ROTARY CALCULATOR

A-1

(1)
4.27
3.15
9.81
2.71
5.23
7.06
5.04
2.41
9.15
4.29
53.12

(2)
1.73
2.13
8.42
5.16
1.07
3.16
6.05
7.35
4.60
2.89
42.56

(3)
21.90
16.75
29.43
54.98
22.04
13.05
86.14
91.58
41.12
79.08
456.07

(4)
27.05
41.59
73.05
24.09
57.75
15.67
91.59
24.02
71.05
52.28
478.14

(5)
10.52
32.07
.32
365.55
2,104.61
14.98
52.60
27.17
407.90
1,230.17
4,245.89

(6)
16.87
- 3.47
13.40

(7)
77.42
- 20.91
56.51

(8)
357.93
- 17.05
340.88

(9)
406.82
- 720.52
313.70 Cr.

(10)
374.42
-899.05
524.63 Cr.

(11)
1198 + 457 = 1,655
592 + 457 = 1,049
981 + 457 = 1,438

(12) 541.5 x 14.08 = 7,624.32

(13) 47.3 x 17 = 804.1

(14) 89.3 x 23.3 = 2,080.69

(15) 19 x 133 x 407 = 1,028,489

(16) 18.2 x 1.05 x 16.4 = 313.404

(17) 185.54 ÷ 75.2 = 2.46728

(18) 467.61 ÷ 12.22 = 38.26595

(19) 442.57 ÷ 77 = 5.74766

(20) Convert 321 feet to yards =
107 yards

Rotary Calculator

(21) Convert 4,052 inches to feet = 337 ft., 8 in.

(22) Accumulate:

```
 14.15   x  74.253
  3.02   x   4.12
 84.3    x    .13
506.02   x   2.53
------------------
 2,354.31195
```

| | Interest On: | Answers |
|---|---|---|
| (23) | $470.75 at 2 1/2% = | $ 11.77 |
| (24) | $2,450.40 at 1 3/4% = | 42.88 |
| (25) | $1,865.00 at 8% = | 149.20 |
| (26) | $1,514.65 at 8 1/4% = | 124.96 |

Find the percentage of Increase or Decrease

| Previous | Current | Percentage + or - |
|---|---|---|
| (27) 50,190 | 11,642 | -76.8% |
| (28) 13,790 | 17,305 | +25.48% |
| (29) 4,924 | 4,761 | - 3.31% |
| (30) 9,653 | 7,500 | -22.3% |
| (31) 30,546 | 19,673 | -35.5% |

Find the net amount of the following:

(32) $1,926.75 less 5%, 10%, 5% = $1,565.00

(33) $ 842.00 less 25%, 15%, 20% = $ 429.42

(34) $1,050.75 less 15%, 15%, 10% = $ 683.25

# POST TEST FOR ROTARY CALCULATOR

(1)
$$\begin{array}{r} 4.27 \\ 3.15 \\ 9.81 \\ 2.71 \\ 5.23 \\ 8.09 \\ 5.04 \\ 3.21 \\ 9.15 \\ \underline{4.29} \end{array}$$

(2)
$$\begin{array}{r} 1.73 \\ 2.13 \\ 8.42 \\ 5.16 \\ 1.07 \\ 5.41 \\ 6.05 \\ 3.75 \\ 4.60 \\ \underline{2.89} \end{array}$$

(3)
$$\begin{array}{r} 21.90 \\ 16.75 \\ 29.43 \\ 54.98 \\ 22.04 \\ 17.03 \\ 71.24 \\ 91.58 \\ 41.12 \\ \underline{79.08} \end{array}$$

(4)
$$\begin{array}{r} 27.05 \\ 41.59 \\ 73.05 \\ 24.09 \\ 62.24 \\ 16.57 \\ 91.59 \\ 24.02 \\ 71.05 \\ \underline{52.28} \end{array}$$

(5)
$$\begin{array}{r} 10.52 \\ 41.09 \\ .32 \\ 365.55 \\ 2{,}104.61 \\ 14.98 \\ 45.20 \\ 27.17 \\ 407.90 \\ \underline{1{,}230.17} \end{array}$$

(6)
$$\begin{array}{r} 15.95 \\ \underline{-\ 4.34} \end{array}$$

(7)
$$\begin{array}{r} 67.24 \\ \underline{-30.26} \end{array}$$

(8)
$$\begin{array}{r} 275.39 \\ \underline{-\ 19.99} \end{array}$$

(9)
$$\begin{array}{r} 401.28 \\ \underline{-840.25} \end{array}$$

(10)
$$\begin{array}{r} 734.24 \\ \underline{-988.04} \end{array}$$

(11) 1198 + 457 =
592 + 457 =
981 + 457 =

(12) 541.5 x 34.06 =

(13) 47.3 x 15 =

(14) 89.3 x 23.5 =

(15) 19 x 133 x 407 =

(16) 18.2 x 1.05 x 15.4 =

(17) 185.54 ÷ 61.4 =

(18) 467.61 ÷ 12.03 =

(19) 442.57 ÷ 75 =

(20) Convert 321 feet to yards =

(21) Convert 4,078 inches to feet =

(22) Accumulate:

14.15 x 74.253
3.02 x 4.21
85.2 x .13
506.02 x 3.42

Interest On: Answer

(23) $420.35 at 2 1/2% =

(24) $4,071.50 at 1 3/4% =

(25) $1,654.00 at 8% =

(26) $2,421.60 at 8 1/4% =

Find the percentage of Increase or Decrease

| Previous | Current | Percentage + or - |
|---|---|---|
| (27) 50,190 | 19,721 | |
| (28) 13,790 | 14,750 | |
| (29) 4,924 | 4,791 | |
| (30) 9,653 | 7,300 | |
| (31) 30,546 | 27,550 | |

Find the net amount of the following:

(32) $2,926.75 less 5%, 10%, 13% =

(33) $1,752.00 less 25%, 15%, 20% =

(34) $1,050.75 less 25%, 15%, 10% =

KEY

## POST TEST FOR ROTARY CALCULATOR

A-2

(1)
4.27
3.15
9.81
2.71
5.23
8.09
5.04
3.21
9.15
4.29

54.95

(2)
1.73
2.13
8.42
5.16
1.07
5.41
6.05
3.75
4.60
2.89

41.21

(3)
21.90
16.75
29.43
54.98
22.04
17.03
71.24
91.58
41.12
79.08

445.15

(4)
27.05
41.59
73.05
24.09
62.24
16.57
91.59
24.02
71.05
52.28

483.53

(5)
10.52
41.09
.32
365.55
2,104.61
14.98
45.20
27.17
407.90
1,230.17

4,247.51

(6)
15.95
- 4.34

11.61

(7)
67.24
-30.26

36.98

(8)
275.39
- 19.99

255.40

(9)
401.28
-840.25

438.97 Cr.

(10)
734.24
-988.04

253.80 Cr.

(11) 1198 + 457 = 1,655
592 + 457 = 1,049
981 + 457 = 1,438

(12) 541.5 x 34.06 = 18,443.49

(13) 47.3 x 15 = 709.5

(14) 89.3 x 23.5 = 2,098.55

(15) 19 x 133 x 407 = 1,028,489

(16) 18.2 x 1.05 x 15.4 = 294.294

(17) 185.54 ÷ 61.4 = 3.02182

(18) 467.61 ÷ 12.03 = 38.87032

(19) 442.57 ÷ 75 = 5.90093

(20) Convert 321 feet to yards = 107 yds.

(21) Convert 4,078 inches to feet = 339 ft., 10 inches

(22) Accumulate:

14.15 x 74.253
3.02 x 4.21
85.2 x .13
506.02 x 3.42

2,805.05855

| Interest On: | Answer |
|---|---|
| (23) $420.35 at 2 1/2% = | $10.51 |
| (24) $4,071.50 at 1 3/4% = | $71.25 |
| (25) $1,654.00 at 8% = | $132.32 |
| (26) $2,421.60 at 8 1/4% = | $199.78 |

Find the percentage of Increase or Decrease

| Previous | Current | Percentage + or - |
|---|---|---|
| (27) 50,190 | 19,721 | -60.70% |
| (28) 13,790 | 14,750 | + 6.96% |
| (29) 4,924 | 4,791 | - 2.70% |
| (30) 9,653 | 7,300 | -24.37% |
| (31) 30.546 | 27,550 | - 9.80% |

Find the net amount of the following:

(32) $2,926.75 less 5%, 10%, 13% = $2,177.06

(33) $1,752.00 less 25%, 15%, 20% = $ 893.52

(34) $1,050.75 less 25%, 15%, 10% = $ 602.87

## POST TEST FOR ROTARY CALCULATOR

(1)
4.27
3.15
9.81
2.71
5.23
8.09
5.04
4.21
9.15
4.29

(2)
1.73
2.13
8.42
5.16
1.07
1.45
6.05
7.35
4.60
2.89

(3)
21.90
16.75
29.43
54.98
22.04
31.06
71.24
91.58
41.12
79.08

(4)
27.05
41.59
73.05
42.08
62.24
15.67
91.59
24.02
71.05
52.28

(5)
10.52
14.08
.32
365.55
2,104.61
14.98
52.60
27.17
407.90
1,230.17

(6)
15.95
- 4.37

(7)
76.42
-20.91

(8)
275.39
- 12.25

(9)
510.82
-720.52

(10)
753.42
-899.05

(11)
1198 + 489 =
592 + 489 =
981 + 489 =

(12) 541.5 x 27.07 =

(13) 41.7 x 18 =

(14) 89.3 x 23.3 =

(15) 19 x 221 x 506 =

(16) 18.2 x 1.02 x 17.5 =

(17) 185.54 ÷ 75.5 =

(18) 467.61 ÷ 15.02 =

(19) 442.57 ÷ 73 =

(20) Convert 172 feet to yards =

(21) Convert 4,095 inches to feet =

(22) Accumulate:

41.51 x 74.253
3.02 x 4.21
85.2 x .13
506.02 x 2.53

Interest On: Answer

(23) $614.23 at 2 1/2% =

(24) $3,450.20 at 1 3/4% =

(25) $1,793.00 at 8% =

(26) $4,301.60 at 8 1/4% =

Find the percentage of Increase or Decrease:

| Previous | Current | Percentage + or - |
|---|---|---|
| (27) 50,190 | 11,107 | |
| (28) 13,790 | 14,402 | |
| (29) 4,924 | 3,897 | |
| (30) 9,653 | 7,400 | |
| (31) 30,546 | 27,543 | |

Find the net amount of the following:

(32) $1,762.70 less 5%, 10%, 13% =

(33) $ 590.00 less 25%, 15%, 20% =

(34) $1,062.25 less 5%, 15%, 10% =

KEY

## POST TEST FOR ROTARY CALCULATOR

A-3

(1) 4.27
3.15
9.81
2.71
5.23
8.09
5.04
4.21
9.15
4.29
55.95

(2) 1.73
2.13
8.42
5.16
1.07
1.45
6.05
7.35
4.60
2.89
40.85

(3) 21.90
16.75
29.43
54.98
22.04
31.06
71.24
91.58
41.12
79.08
459.18

(4) 27.05
41.59
73.05
42.08
62.24
15.67
91.59
24.02
71.05
52.28
500.62

(5) 10.52
14.08
.32
365.55
2,104.61
14.98
52.60
27.17
407.90
1,230.17
4,227.90

(6) 15.95
- 4.37
11.58

(7) 76.42
-20.91
55.51

(8) 275.39
- 12.25
263.14

(9) 510.82
-720.52
209.70 Cr.

(10) 753.42
-899.05
145.63 Cr.

(11) 1198 + 489 = 1,687
592 + 489 = 1,081
981 + 489 = 1,470

(12) 541.5 x 27.07 = 14,658.405

(13) 41.7 x 18 = 750.6

(14) 89.3 x 23.3 = 2,080.69

(15) 19 x 221 x 506 =2,124,694

(16) 18.2 x 1.02 x 17.5 = 324.87

(17) 185.54 ÷ 75.5 = 2.45748

(18) 467.61 ÷ 15.02 = 31.13249

(19) 442.57 ÷ 73 = 6.0626

(20) Convert 172 feet to yards = 57 yds, 1 ft.

(21) Convert 4,095 inches to feet = 341 ft., 3 in.

(22) Accumulate:

41.51 x 74.253
3.02 x 4.21
85.2 x .13
506.02 x 2.53

4,386.26283

| | Interest On: | Answer |
|---|---|---|
| (23) | $614.23 at 2 1/2% = | $15.36 |
| (24) | $3,450.20 at 1 3/4% = | $60.38 |
| (25) | $1,793.00 at 8% = | $143.44 |
| (26) | $4,301.60 at 8 1/4% = | $354.88 |

Find the percentage of Increase or Decrease:

| Previous | Current | Percentage + or - |
|---|---|---|
| (27) 50,190 | 11,107 | - 77.87% |
| (28) 13,790 | 14,402 | + 4.44% |
| (29) 4,924 | 3,897 | - 20.86% |
| (30) 9,653 | 7,400 | - 23.34% |
| (31) 30,546 | 27,543 | - 9.83% |

Find the net amount of the following:

(32) $1,762.70 less 5%, 10%, 13% = $1,311.18

(33) $ 590.00 less 25%, 15%, 20% = $ 300.90

(34) $1,062.25 less 5%, 15%, 10% = $ 711.99

# DIRECTIONS

## POST TEST FOR TEN-KEY CALCULATOR

You will be allowed 45 minutes (55 minutes if working on a Victor). Work quickly. Work each problem one time. If you finish in less than 45 or 55 minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Carry percentages out to two decimal places.
3. Round all products off to five decimal places.
4. Carry all division problems out to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers; for example, Cr., %, etc.
7. Turn in paper tape.
8. Complete evaluation sheet.
9. Turn in time sheet.

# POST TEST FOR TEN-KEY CALCULATOR

(1)
7.84
3.241
53.98
4.07
2.421

(2)
.4276
- 3.66
15.988
.525
-13.3

(3)
4.875
.65
ST

(4)
8.755
18.53
T

(5)
453.75
-205.98

(6)
650.37
-891.45

(7)
2,319.40
-2,145.91

(8)
4,381.04
-6,762.10

(9)
545.25
545.25
545.25
51.20
51.20
51.20

(10)
1,330.77
1,330.77
1,330.77
625.40
625.40
1,346.67

(11) 591 x 75 =

(12) 64 x 28 =

(13) 31 x 37 =

(14) 736 x 59 =

(15) 44 x 72 =

(16) 16.3 x 3.86 =

(17) 44 x 25.2 =

(18) 5.27 x 19.33 =

(19) 7.83 x 22.3 =

(20) 14.39 x 4.3 =

(21) 30 x 25 x 22 x 12 =

(22) 122 x 14 x 23 =

(23) 75 x 31 x 78 =

(24) 20 x 24 x 25 x 11 =

(25) 64 x 45 x 71 =

(26) 17 x 92
73 x 54
45 x 49

(27) 7.76 x 4.9
89.42 x .54
5.3 x 3.7

(28) 5.71 x 7.24
.54 x 9.7
9.51 x 75.2

(29) 136 lbs. at $ .95 =

(30) 40 lbs. at $ .95 =

(31) 61 lbs. at $ .95 =

(32) 87 lbs. at $ .95 =

(33) 58 lbs. at $ .95 =

(34) 201 doz. at $1.75 =

(35) 63 doz. at $1.75 =

(36) 16 doz. at $1.75 =

(37) 433 doz. at $1.75 =

(38) 10 doz. at $1.75 =

(39) 2,512 ÷ 34 =

(40) 786 ÷ 45 =

(41) 3,689 ÷ 24 =

(42) 9,864 ÷ 176 =

(43) 11,903 ÷ 306 =

(44) 107.542 ÷ 75 =

(45) 29.75 ÷ 5.5 =

(46) 13.15 ÷ .75 =

(47) 65 ÷ 595.25 =

(48) 21 ÷ 30.55 =

## SALES COMPARISON

| MONTH | LAST YEAR | THIS YEAR | AMOUNT OF INCREASE OR DECREASE | % + or - |
|---|---|---|---|---|
| January | $ 13,600 | $ 15,524 | | |
| February | 8,570 | 10,307 | | |
| March | 14,547 | 25,302 | | |
| April | 14,870 | 15,100 | | |
| May | 21,740 | 18,423 | | |
| June | 41,230 | 40,701 | | |
| July | 16,932 | 21,903 | | |
| August | 17,452 | 24,807 | | |
| September | 21,704 | 15,432 | | |
| October | 31,504 | 29,804 | | |
| November | 25,801 | 30,745 | | |
| December | 59,719 | 30,985 | | |

KEY

# POST TEST FOR TEN-KEY CALCULATOR

B-1

(1)
7.84
3.241
53.98
4.07
2.421
71.552

(2)
.4276
- 3.66
15.988
.525
-13.3
.0194 Cr.

(3)
4.875
.65
5.525 ST

(4)
8.755
18.53
32.81 T

(5)
453.75
-205.98
247.77

(6)
650.37
-891.45
241.08 Cr.

(7)
2,319.40
-2,145.91
173.49

(8)
4,381.04
-6,762.10
2,381.06 Cr.

(9)
545.25
545.25
545.25
51.20
51.20
51.20
1,789.35

(10)
1,330.77
1,330.77
1,330.77
625.40
625.40
1,346.67
6,589.78

(11) 591 x 75 = 44,325

(12) 64 x 28 = 1,792

(13) 31 x 37 = 1,147

(14) 736 x 59 = 43,424

(15) 44 x 72 = 3,168

(16) 16.3 x 3.86 = 62.918

(17) 44 x 25.2 = 1,108.8

(18) 5.27 x 19.33 = 101.8691

(19) 7.83 x 22.3 = 174.609

(20) 14.39 x 4.3 = 61.877

(21) 30 x 25 x 22 x 12 = 198,000

(22) 122 x 14 x 23 = 39,284

(23) 75 x 31 x 78 = 181,350

(24) 20 x 24 x 25 x 11 = 132,000

(25) 64 x 45 x 71 = 204,480

(26) 17 x 92
73 x 54
45 x 49
7,711

(27) 7.76 x 4.9
89.42 x .54
5.3 x 3.7
105.9208

(28) 5.71 x 7.24
.54 x 9.7
9.51 x 75.2
761.7304

(29) 136 lbs. at $ .95 = $129.20

(30) 40 lbs. at $ .95 = $38.00

(31) 61 lbs. at $ .95 = $57.95

(32) 87 lbs. at $ .95 = $82.65

(33) 58 lbs. at $ .95 = $55.10

(34) 201 doz. at $1.75 = $351.75

(35) 63 doz. at $1.75 = $110.25

(36) 16 doz. at $1.75 = $28.00

(37) 433 doz. at $1.75 = $757.75

(38) 10 doz. at $1.75 = $17.50

(39) 2,512 ÷ 34 = 73.88235

(40) 786 ÷ 45 = 17.46666

(41) 3,689 ÷ 24 = 153.70833

(42) 9,864 ÷ 176 = 56.04545

(43) 11,903 ÷ 306 = 38.89869

(44) 107.542 ÷ 75 = 1.43389

(45) 29.75 ÷ 5.5 = 5.40909

(46) 13.15 ÷ .75 = 17.53333

(47) 65 ÷ 595.25 = .10919

(48) 21 ÷ 30.55 = .68739

## SALES COMPARISON

| MONTH | LAST YEAR | THIS YEAR | AMOUNT OF INCREASE OR DECREASE | | % + or - |
|---|---|---|---|---|---|
| January | $ 13,600 | $ 15,524 | $1,924 | | +14.14% |
| February | 8,570 | 10,307 | 1,737 | | +20.26% |
| March | 14,547 | 25,302 | 10,755 | | +73.93% |
| April | 14,870 | 15,100 | 230 | | + 1.54% |
| May | 21,740 | 18,423 | | $3,317 | -15.25% |
| June | 41,230 | 40,701 | | 529 | - 1.28% |
| July | 16,932 | 21,903 | 4,971 | | +29.35% |
| August | 17,452 | 24,807 | 7,355 | | +42.14% |
| September | 21,704 | 15,432 | | 6,272 | -28.89% |
| October | 31,504 | 29,804 | | 1,700 | - 5.39% |
| November | 25,801 | 30,745 | 4,944 | | +19.16% |
| December | 59,719 | 30,985 | | 28,734 | -48.11% |

## POST TEST FOR TEN-KEY CALCULATOR

(1) 3.87
2.213
52.43
5.01
1.004

(2) .3765
-4.33
15.983
.121
-12.2

(3) 2.857
.15
ST

(4) 6.897
18.20
T

(5) 256.38
-450.98

(6) 620.27
-819.50

(7) 2,812.10
-1,254.81

(8) 1,267.04
-2,384.07

(9) 233.51
233.51
233.51
92.58
92.58
92.58

(10) 1,082.67
1,082.67
1,082.67
407.02
407.02
1,082.67

(11) 519 x 94 =

(12) 31 x 58 =

(13) 54 x 87 =

(14) 207 x 32 =

(15) 23 x 16 =

(16) 14.3 x 2.43 =

(17) 53 x 92.3 =

(18) 2.36 x 14.33 =

(19) 1.64 x 11.2 =

(20) 15.22 x 4.3 =

(21) 51 x 12 x 98 x 22 =

(22) 82 x 46 x 221 =

(23) 112 x 31 x 43 =

(24) 23 x 18 x 12 x 3 =

(25) 821 x 54 x 71 =

(26) 61 x 92
73 x 54
57 x 49

(27) 6.63 x 8.2
12.89 x .33
3.4 x 8.5

(28) 5.17 x 8.75
.54 x 8.8
9.15 x 75.2

(29) 751 lbs. @ $1.59 =

(30) 30 lbs. @ $1.59 =

(31) 110 lbs. @ $1.59 =

(32) 97 lbs. @ $1.59 =

(33) 711 lbs. @ $1.59 =

(34) 202 doz. @ $ .57 =

(35) 217 doz @ $ .57 =

(36) 91 doz. @ $ .57 =

(37) 223 doz. @ $ .57 =

(38) 401 doz. @ $ .57 =

(39) 1,211 ÷ 83 =

(40) 613 ÷ 66 =

(41) 1,824 ÷ 71 =

(42) 5,243 ÷ 871 =

(43) 16,201 ÷ 404 =

(44) 601.425 ÷ 57 =

(45) 81.94 ÷ 1.7 =

(46) 11.12 ÷ .56 =

(47) 23 ÷ 285.52 =

(48) 12 ÷ 20.77 =

## SALES COMPARISON

| MONTH | LAST YEAR | THIS YEAR | AMOUNT OF INCREASE OR DECREASE | % + OR - |
|---|---|---|---|---|
| January | $ 75,420 | $ 64,221 | | |
| February | 80,321 | 82,409 | | |
| March | 91,304 | 79,421 | | |
| April | 86,302 | 83,401 | | |
| May | 90,000 | 97,320 | | |
| June | 49,620 | 69,421 | | |
| July | 89,417 | 80,724 | | |
| August | 79,324 | 90,719 | | |
| September | 87,901 | 90,421 | | |
| October | 89,721 | 92,400 | | |
| November | 90,700 | 91,321 | | |
| December | 90,400 | 90,000 | | |

KEY

# POST TEST FOR TEN-KEY CALCULATOR

B-2

(1)
3.87
2.213
52.43
5.01
1.004
64.527

(2)
.3765
-4.33
15.983
.121
-12.2
.0495 Cr.

(3)
2.857
.15
3.007$^{ST}$

(4)
6.897
18.20
28.104 T

(5)
256.38
-450.98
194.6 Cr.

(6)
620.27
-819.50
[illegible] Cr.

(7)
2,812.10
-1,254.81
1,557.29

(8)
1,267.04
-2,384.07
1,117.03 Cr.

(9)
233.51
233.51
233.51
92.58
92.58
92.58
978.27

(10)
1,082.67
1,082.67
1,082.67
407.02
407.02
1,082.67
5,144.72

(11) 519 x 94 = 48,786

(12) 31 x 58 = 1,798

(13) 54 x 87 = 4,698

(14) 207 x 32 = 6,624

(15) 23 x 16 = 368

(16) 14.3 x 2.43 = 34.749

(17) 53 x 92.3 = 4,891.9

(18) 2.36 x 14.33 = 33.8188

(19) 1.64 x 11.2 = 18.368

(20) 15.22 x 4.3 = 65.446

(21) 51 x 12 x 98 x 22 =1,319,472

(22) 82 x 46 x 221 = 833,612

(23) 112 x 31 x 43 = 149,296

(24) 23 x 18 x 12 x 3 =14,904

(25) 821 x 54 x 71 = 3,147,714

(26)
61 x 92
73 x 54
57 x 49
12,347

(27)
6.63 x 8.2
12.89 x .33
3.4 x 8.5
87.5197

(28)
5.17 x 8.75
.54 x 8.8
9.15 x 75.2
738.0695

(29) 751 lbs. @ $1.59 = $1,194.09
(30) 30 lbs. @ $1.59 = $47.70
(31) 110 lbs. @ $1.59 = $174.90
(32) 97 lbs. @ $1.59 = $154.23
(33) 711 lbs. @ $1.59 = $1,130.49
(34) 202 doz. @ $ .57 = $115.14
(35) 217 doz @ $ .57 = $123.69
(36) 91 doz. @ $ .57 = $51.87
(37) 223 doz. @ $ .57 = $127.11
(38) 401 doz. @ $ .57 = $228.57
(39) 1,211 ÷ 83 = 14.59036
(40) 613 ÷ 66 = 9.28787
(41) 1,824 ÷ 71 = 25.69014
(42) 5,243 ÷ 871 = 6.01951
(43) 16,201 ÷ 404 = 40.10148
(44) 601.425 ÷ 57 = 10.55131
(45) 81.94 ÷ 1.7 = 48.2
(46) 11.12 ÷ .56 = 19.85714
(47) 23 ÷ 285.52 = .08055
(48) 12 ÷ 20.77 = .57775

## SALES COMPARISON

| MONTH | LAST YEAR | THIS YEAR | AMOUNT OF INCREASE OR DECREASE | | % + OR - |
|---|---|---|---|---|---|
| January | $ 75,420 | $ 64,221 | | $11,199 | -14.84% |
| February | 80,321 | 82,409 | $ 2,088 | | + 2.59% |
| March | 91,304 | 79,421 | | 11,883 | -13.01% |
| April | 86,302 | 83,401 | | 2,901 | - 3.36% |
| May | 90,000 | 97,320 | 7,320 | | + 8.13% |
| June | 49,620 | 69,421 | 19,801 | | +39.9 % |
| July | 89,417 | 80,724 | | 8,693 | - 9.72% |
| August | 79,324 | 90,719 | 11,395 | | +14.36% |
| September | 87,901 | 90,421 | 2,520 | | + 2.86% |
| October | 89,721 | 92,400 | 2,679 | | + 2.98% |
| November | 90,700 | 91,321 | 621 | | + .68% |
| December | 90,400 | 90,000 | | 400 | - .44% |

# POST TEST FOR TEN KEY CALCULATOR

(1)
7.84
3.241
53.98
7.04
3.531

(2)
.5267
- 3.66
15.988
.435
-13.3

(3)
4.785
.35
ST

(4)
8.755
18.53
T

(5)
435.54
-205.98

(6)
650.37
-891.45

(7)
3,191.30
-2,145.91

(8)
3,248.70
-4,276.10

(9)
545.25
545.25
545.25
16.44
16.44
16.44

(10)
1,330.77
1,330.77
1,330.77
640.70
640.70
1,346.67

(11) 419 x 94 =

(12) 55 x 42 =

(13) 31 x 47 =

(14) 721 x 95 =

(15) 55 x 63 =

(16) 18.2 x 4.16 =

(17) 14 x 25.2 =

(18) 2.57 x 17.22 =

(19) 3.87 x 33.2 =

(20) 19.45 x 3.4 =

(21) 30 x 15 x 33 x 12 =

(22) 122 x 41 x 32 =

(23) 57 x 31 x 87 =

(24) 30 x 42 x 25 x 11 =

(25) 64 x 45 x 71 =

(26)
17 x 92
73 x 45
57 x 49

(27)
7.76 x 4.9
89.42 x .45
5.3 x 6.9

(28)
5.71 x 8.75
.54 x 9.8
9.51 x 75.2

(29) 136 lbs. at $2.05 =

(30) 40 lbs. at $2.05 =

(31) 61 lbs. at $2.05 =

(32) 87 lbs. at $2.05 =

(33) 58 lbs. at $2.05 =

(34) 201 lbs. at $ .95 =

(35) 63 lbs. at $ .95 =

(36) 16 doz. at $ .95 =

(37) 433 doz. at $ .95 =

(38) 10 doz. at $ .95 =

(39) 2,512 ÷ 47 =

(40) 786 ÷ 47 =

(41) 3,689 ÷ 91 =

(42) 9,864 ÷ 581 =

(43) 11,903 ÷ 704 =

(44) 107.542 ÷ 45 =

(45) 29.75 ÷ 3.2 =

(46) 13.15 ÷ .34 =

(47) 44 ÷ 595.25 =

(48) 15 ÷ 30.55 =

## SALES COMPARISON

| MONTH | LAST YEAR | THIS YEAR | AMOUNT OF INCREASE OR DECREASE | % + OR - |
|---|---|---|---|---|
| January | $ 13,400 | $ 16,575 | | |
| February | 7,450 | 12,602 | | |
| March | 13,457 | 21,233 | | |
| April | 13,780 | 14,900 | | |
| May | 31,470 | 19,429 | | |
| June | 31,320 | 50,802 | | |
| July | 17,823 | 19,905 | | |
| August | 16,542 | 15,942 | | |
| September | 22,407 | 18,702 | | |
| October | 33,405 | 27,408 | | |
| November | 24,702 | 30,435 | | |
| December | 47,618 | 40,536 | | |

KEY

# POST TEST FOR TEN KEY CALCULATOR

B-3

(1)
7.84
3.241
53.98
7.04
3.531
75.632

(2)
.5267
- 3.66
15.988
.435
-13.3
.0103 Cr.

(3)
4.785
.35
5.135 ST

(4)
8.755
18.53
32.42 T

(5)
435.54
-205.98
229.56

(6)
650.37
-891.45
241.08 Cr.

(7)
3,191.30
-2,145.91
1,045.39

(8)
3,248.70
-4,276.10
1,027.40 Cr.

(9)
545.25
545.25
545.25
16.44
16.44
16.44
1,685.07

(10)
1,330.77
1,330.77
1,330.77
640.70
640.70
1,346.67
6,620.38

(11) 419 x 94 = 39,386

(12) 55 x 42 = 2,310

(13) 31 x 47 = 1,457

(14) 721 x 95 = 68,495

(15) 55 x 63 = 3,465

(16) 18.2 x 4.16 = 75.712

(17) 14 x 25.2 = 352.8

(18) 2.57 x 17.22 = 44.2554

(19) 3.87 x 33.2 = 128.484

(20) 19.45 x 3.4 = 66.13

(21) 30 x 15 x 33 x 12 = 178,200

(22) 122 x 41 x 32 = 160,064

(23) 57 x 31 x 87 = 153,729

(24) 30 x 42 x 25 x 11 = 346,500

(25) 64 x 45 x 71 = 204,480

(26)
17 x 92
73 x 45
57 x 49
7,642

(27)
7.76 x 4.9
89.42 x .45
5.3 x 6.9
114.833

(28)
5.71 x 8.75
.54 x 9.8
9.51 x 75.2
770.4065

(29) 136 lbs. at $2.05 = $278.80

(30) 40 lbs. at $2.05 = $ 82.00

(31) 61 lbs. at $2.05 = $125.05

(32) 87 lbs. at $2.05 = $178.35

(33) 58 lbs. at $2.05 = $118.90

(34) 201 lbs. at $ .95 = $190.95

(35) 63 lbs. at $ .95 = $ 59.85

(36) 16 doz. at $ .95 = $ 15.20

(37) 433 doz. at $ .95 = $411.35

(38) 10 doz. at $ .95 = $ 9.50

(39) 2,512 ÷ 47 = 53.4468

(40) 786 ÷ 47 = 16.7234

(41) 3,689 ÷ 91 = 40.53846

(42) 9,864 ÷ 581 = 16.97762

(43) 11,903 ÷ 704 = 16.90767

(44) 107.542 ÷ 45 = 2.38982

(45) 29.75 ÷ 3.2 = 9.29687

(46) 13.15 ÷ .34 = 38.67647

(47) 44 ÷ 595.25 = .0739

(48) 15 ÷ 30.55 = .49099

## SALES COMPARISON

| MONTH | LAST YEAR | THIS YEAR | AMOUNT OF INCREASE OR DECREASE | | % + OR - |
|---|---|---|---|---|---|
| January | $ 13,400 | $ 16,575 | $ 3,175 | | +23.69% |
| February | 7,450 | 12,602 | 5,152 | | +69.15% |
| March | 13,457 | 21,233 | 7,776 | | +57.78% |
| April | 13,780 | 14,900 | 1,120 | | + 8.12% |
| May | 31,470 | 19,429 | | $12,041 | -38.26% |
| June | 31,320 | 50,802 | 19,482 | | +62.2 % |
| July | 17,823 | 19,905 | 2,082 | | +11.68% |
| August | 16,542 | 15,942 | | 600 | - 3.62% |
| September | 22,407 | 18,702 | | 3,705 | -16.53% |
| October | 33,405 | 27,408 | | 5,997 | -17.95% |
| November | 24,702 | 30,435 | 5,733 | | +23.2 % |
| December | 47,618 | 40,536 | | 7,082 | -14.87% |

# POST TEST FOR TEN-KEY CALCULATOR

B-4

(1)
7.84
3.241
53.98
4.07
4.321

(2)
.5267
- 3.66
14.889
.525
-13.3

(3)
4.875
.35
ST

(4)
7.645
18.53
T

(5)
445.75
-205.98

(6)
650.74
-891.45

(7)
2,271.24
-2,145.91

(8)
3,784.02
-4,276.10

(9)
545.25
545.25
545.25
15.30
15.30
15.30

(10)
1,330.77
1,330.77
1,330.77
570.40
570.40
1,346.67

(11) 591 x 74 =

(12) 47 x 28 =

(13) 13 x 48 =

(14) 721 x 95 =

(15) 65 x 72 =

(16) 15.6 x 3.86 =

(17) 52 x 25.2 =

(18) 5.27 x 19.33 =

(19) 3.87 x 33.2 =

(20) 19.45 x 3.4 =

(21) 30 x 15 x 22 x 14 =

(22) 122 x 14 x 45 =

(23) 75 x 31 x 78 =

(24) 30 x 42 x 25 x 11 =

(25) 64 x 45 x 71 =

(26)
17 x 92
37 x 54
57 x 49

(27)
6.67 x 4.9
89.42 x .54
5.3 x 6.9

(28)
9.51 x 47.5
5.71 x 8.75
.54 x 9.7

(29) 136 lbs. at $1.35 =

(30) 40 lbs. at $1.35 =

(31) 61 lbs. at $1.35 =

(32) 87 lbs. at $1.35 =

(33) 58 lbs. at $1.35 =

(34) 201 doz. at $.95 =

(35) 63 doz. at $.95 =

(36) 16 doz. at $.95 =

(37) 433 doz. at $.95 =

(38) 10 doz. at $.95 =

(39) 5,212 ÷ 57 =

(40) 687 ÷ 74 =

(41) 3,689 ÷ 24 =

(42) 9,864 ÷ 135 =

(43) 11,903 ÷ 437 =

(44) 107.542 ÷ 18 =

(45) 29.75 ÷ 3.4 =

(46) 13.15 ÷ 45 =

(47) 25 ÷ 595.25 =

(48) 13 ÷ 30.55 =

## SALES COMPARISON

| MONTH | LAST YEAR | THIS YEAR | AMOUNT OF INCREASE OR DECREASE | % + OR - |
|---|---|---|---|---|
| January | $ 13,600 | $ 16,495 | | |
| February | 8,570 | 13,704 | | |
| March | 14,547 | 22,322 | | |
| April | 14,870 | 15,720 | | |
| May | 21,740 | 18,239 | | |
| June | 41,230 | 60,820 | | |
| July | 16,932 | 18,509 | | |
| August | 17,452 | 14,742 | | |
| September | 21,704 | 19,207 | | |
| October | 31,504 | 26,309 | | |
| November | 25,801 | 35,620 | | |
| December | 59,719 | 42,635 | | |

KEY

# POST TEST FOR TEN-KEY CALCULATOR

B-4

(1)
7.84
3.241
53.98
4.07
4.321
73.452

(2)
.5267
- 3.66
14.889
.525
-13.3
1.0193 Cr.

(3)
4.875
.35
5.225ST

(4)
7.645
18.53
31.4 T

(5)
445.75
-205.98
239.77

(6)
650.74
-891.45
240.71 Cr.

(7)
2,271.24
-2,145.91
125.33

(8)
3,784.02
-4,276.10
492.08 Cr.

(9)
545.25
545.25
545.25
15.30
15.30
15.30
1,681.65

(10)
1,330.77
1,330.77
1,330.77
570.40
570.40
1,346.67
6,479.78

(11) 591 x 74 = 43,734

(12) 47 x 28 = 1,316

(13) 13 x 48 = 624

(14) 721 x 95 = 68,495

(15) 65 x 72 = 4,680

(16) 15.6 x 3.86 = 60.216

(17) 52 x 25.2 = 1,310.4

(18) 5.27 x 19.33 = 101.8691

(19) 3.87 x 33.2 = 128.484

(20) 19.45 x 3.4 = 66.13

(21) 30 x 15 x 22 x 14 = 138,600

(22) 122 x 14 x 45 = 76,860

(23) 75 x 31 x 78 = 181,350

(24) 30 x 42 x 25 x 11 = 346,500

(25) 64 x 45 x 71 = 204,480

(26)
17 x 92
37 x 54
57 x 49
6,355

(27)
6.67 x 4.9
89.42 x .54
5.3 x 6.9
117.5398

(28)
9.51 x 47.5
5.71 x 8.75
.54 x 9.7
506.9255

(29) 136 lbs. at $1.35 = $183.60

(30) 40 lbs. at $1.35 = $54.00

(31) 61 lbs. at $1.35 = $82.35

(32) 87 lbs. at $1.35 = $117.45

(33) 58 lbs. at $1.35 = $78.30

(34) 201 doz. at $.95 = $190.95

(35) 63 doz. at $.95 = $59.85

(36) 16 doz. at $.95 = $15.20

(37) 433 doz. at $.95 = $411.35

(38) 10 doz. at $.95 = $ 9.50

(39) 5,212 ÷ 57 = 91.43859

(40) 687 ÷ 74 = 9.28378

(41) 3,689 ÷ 24 = 153.70833

(42) 9,864 ÷ 135 = 73.06666

(43) 11,903 ÷ 437 = 27.23798

(44) 107.542 ÷ 18 = 5.97455

(45) 29.75 ÷ 3.4 = 8.75

(46) 13.15 ÷ 45 = .29222

(47) 25 ÷ 595.25 = .04199

(48) 13 ÷ 30.55 = .42553

## SALES COMPARISON

| MONTH | LAST YEAR | THIS YEAR | AMOUNT OF INCREASE OR DECREASE | | % + OR - |
|---|---|---|---|---|---|
| January | $ 13,600 | $ 16,495 | $ 2,895 | | +21.28% |
| February | 8,570 | 13,704 | 5,134 | | +59.9% |
| March | 14,547 | 22,322 | 7,775 | | +53.44% |
| April | 14,870 | 15,720 | 850 | | + 5.71% |
| May | 21,740 | 18,239 | | $ 3,501 | -16.1% |
| June | 41,230 | 60,820 | 19,590 | | +47.51% |
| July | 16,932 | 18,509 | 1,577 | | + 9.31% |
| August | 17,452 | 14,742 | | 2,710 | [illegible] |
| September | 21,704 | 19,207 | | 2,497 | -11.5% |
| October | 31,504 | 26,309 | | 5,195 | -16.48% |
| November | 25,801 | 35,620 | 9,819 | | +38.05% |
| December | 59,719 | 42,635 | | 17,084 | -28.6% |

## DIRECTIONS

## POST TEST FOR TEN-KEY ADDING-LISTING MACHINE

You will be allowed 15 minutes. Work quickly. Work each problem one time. If you finish in less than 15 minutes, use the remaining time to check your answers.

1. Round all reciprocals off to five decimal places.
2. Round all decimal equivalents off to five decimal places.
3. Round all products off to five decimal places.
4. Punctuate all answers with commas and decimal points.
5. Indicate special notations in answers, such as Cr., %, etc.
6. Number all the problems with the non-add key.
7. Turn in paper tape.
8. Complete evaluation sheet.
9. Turn in time sheet.

# POST TEST

## TEN-KEY ADDING-LISTING MACHINE

C-1

| (1) | (2) | (3) |
|---|---|---|
| 4.19 | 45.30 | 250.85 |
| 7.42 | 78.62 | 405.30 |
| 6.40 | 17.45 | 70.20 |
| 4.25 | 47.32 | 336.98 |
| 7.89 | 29.61 | 79.40 |
| 9.33 | 69.45 | 205.19 |
| 7.45 | 42.33 | 89.45 |
| 2.50 | 27.64 | 176.34 |

| (4) | (5) | (6) |
|---|---|---|
| 2,435.62 | 19.65 | 45.90 |
| 3,701.22 | 450.32 | 24.65 |
| 6,324.19 | 795.20 | 100.54 |
| 8,321.60 | 20.40 | 17.95 |
| 741.97 | 304.17 | 4.50 |
| 2.01 | 9,842.55 | 496.75 |
| 75.40 | 421.95 | 4,201.13 |
| 1,204.25 | 25.00 | 1.19 |

(7) 502 x 16 =

(8) 516 x 86 =

(9) 4,019 x 121 =

(10) 3,216 x 75 =

(11) 2,703 x 632 =

(12) 6.39 x 2.5 =

(13) 12.64 x 975 =

(14) 66 ÷ 6 =
(reciprocal of 6 is .16667)

(15) 491 ÷ 40 =
(reciprocal of 40 is .025)

(16) 65.52 ÷ 33 =
(reciprocal of 33 is .0303)

(17) 4,316 ÷ 66 1/2 =
(reciprocal of 665 is .0015)

(18) 42,793 ÷ 999 =
(reciprocal of 999 is .001)

(19) 874 ÷ 1/5 =
(reciprocal of 20 is .05)

(20) 104.02
-17.66

(21) 419,959.40
-37,201.89

(22) 16,321
-18,000

(23) 23 x 116
99 x 114
94 x 37
65 x 11

(24) (236 x 22) - (37 x 45) =

(25) 75 x 72 x 21 =

## POST TEST

KEY

## TEN-KEY ADDING-LISTING MACHINE

C-1

| (1) | (2) | (3) |
|---|---|---|
| 4.19 | 45.30 | 250.85 |
| 7.42 | 78.62 | 405.30 |
| 6.40 | 17.45 | 70.20 |
| 4.25 | 47.32 | 336.98 |
| 7.89 | 29.61 | 79.40 |
| 9.33 | 69.45 | 205.19 |
| 7.45 | 42.33 | 89.45 |
| 2.50 | 27.64 | 176.34 |
| 49.43 | 357.72 | 1,613.71 |

| (4) | (5) | (6) |
|---|---|---|
| 2,435.62 | 19.65 | 45.90 |
| 3,701.22 | 450.32 | 24.65 |
| 6,324.19 | 795.20 | 100.54 |
| 8,321.60 | 20.40 | 17.95 |
| 741.97 | 304.17 | 4.50 |
| 2.01 | 9,842.55 | 496.75 |
| 75.40 | 421.95 | 4,201.13 |
| 1,204.25 | 25.00 | 1.19 |
| 22,806.26 | 11,879.24 | 4,892.61 |

(7) 502 x 16 = 8,032

(8) 516 x 86 = 44,376

(9) 4,019 x 121 = 486,299

(10) 3,216 x 75 = 241,200

(11) 2,703 x 632 = 1,708,296

(12) 6.39 x 2.5 = 15.975

(13) 12.64 x 975 = 12,324

(14) 66 ÷ 6 = 11.00022
(reciprocal of 6 is .16667)

(15) 491 ÷ 40 = 12.275
(reciprocal of 40 is .025)

(16) 65.52 ÷ 33 = 1.9852$_{6}$
(reciprocal of 33 is .0303)

(17) 4,316 ÷ 66 1/2 = 64.74
(reciprocal of 665 is .0015)

(18) 42,793 ÷ 999 = 42.793
(reciprocal of 999 is .001)

(19) 874 ÷ 1/5 = 4,370
(reciprocal of 20 is .05)

(20) 104.02
-17.66
86.36

(21) 419,959.40
-37,201.89
382,757.51

(22) 16,321
-18,000
1,679 Cr.

(23) 23 x 116
99 x 114
94 x 37
65 x 11

18,147

(24) (236 x 22) - (37 x 45) = 3,527

(25) 75 x 72 x 21 = 113,400

# POST TEST

## TEN-KEY ADDING-LISTING MACHINE

(1)
4.19
7.42
5.80
4.25
7.89
9.33
6.34
2.50

(2)
45.30
78.62
19.95
47.32
17.52
69.45
42.33
27.64

(3)
250.85
504.20
70.20
336.98
68.30
205.19
89.45
176.34

(4)
2,435.62
3,701.22
6,324.19
9,421.50
831.96
2.01
75.40
1,204.25

(5)
19.65
340.32
20.40
795.20
321.16
9,842.55
421.95
25.00

(6)
45.90
42.75
100.54
17.95
3.20
496.75
4,201.13
1.19

(7) 106 x 16 =

(8) 324 x 86 =

(9) 3,018 x 211 =

(10) 3,452 x 75 =

(11) 1,902 x 632 =

(12) 2.28 x 2.5 =

(13) 12.74 x 975 =

(14) 96 ÷ 6 =
(reciprocal of 6 is .16667)

(15) 416 ÷ 40 =
(reciprocal of 40 is .025)

(16) 73.15 ÷ 33 =
(reciprocal of 33 is 0303)

(17) 4,316 ÷ 66 1/2 =
(reciprocal of 665 is .0015)

(18) 14,286 ÷ 999 =
(reciprocal of 999 is .001)

(19) 367 ÷ 1/5 =
(reciprocal of 20 is .05)

(20)
104.02
-17.66

(21)
419,959.40
-37,207.89

(22)
16,321
-18,000

(23) 23 x 136
99 x 113
83 x 37
75 x 11

(24) (236 x 21) - (37 x 57) =

(25) 95 x 63 x 21 =

# POST TEST

KEY

## TEN-KEY ADDING-LISTING MACHINE

C-2

| (1) | (2) | (3) |
|---|---|---|
| 4.19 | 45.30 | 250.85 |
| 7.42 | 78.62 | 504.20 |
| 5.80 | 19.95 | 70.20 |
| 4.25 | 47.32 | 336.98 |
| 7.89 | 17.52 | 68.30 |
| 9.33 | 69.45 | 205.19 |
| 6.34 | 42.33 | 89.45 |
| 2.50 | 27.64 | 176.34 |
| 47.72 | 348.13 | 1,701.51 |

| (4) | (5) | (6) |
|---|---|---|
| 2,435.62 | 19.65 | 45.90 |
| 3,701.22 | 340.32 | 42.75 |
| 6,324.19 | 20.40 | 100.54 |
| 9,421.50 | 795.20 | 17.95 |
| 831.96 | 321.16 | 3.20 |
| 2.01 | 9,842.55 | 496.75 |
| 75.40 | 421.95 | 4,201.13 |
| 1,204.25 | 25.00 | 1.19 |
| 23,996.15 | 11,786.23 | 4,909.41 |

(7) 106 x 16 = 1,696

(8) 324 x 86 = 27,864

(9) 3,018 x 211 = 636,798

(10) 3,452 x 75 = 258,900

(11) 1,902 x 632 = 1,202,064

(12) 2.28 x 2.5 = 5.7

(13) 12.74 x 975 = 12,421.5

(14) 96 ÷ 6 = 16.00032
(reciprocal of 6 is .16667)

(15) 416 ÷ 40 = 10.4
(reciprocal of 40 is .025)

(16) 73.15 ÷ 33 = 2.21645
(reciprocal of 33 is .0303)

(17) 4,316 ÷ 66 1/2 = 64.74
(reciprocal of 665 is .0015)

(18) 14,286 ÷ 999 = 14.286
(reciprocal of 999 is .001)

(19) 367 ÷ 1/5 = 1,835
(reciprocal of 20 is .05)

(20) 104.02
-17.66

86.36

(21) 419,959.40
-37,207.89

382,751.51

(22) 16,321
-18,000

1,679 Cr.

(23) 23 x 136
99 x 113
83 x 37
75 x 11

18,211

(24) (236 x 21) - (37 x 57) = 2,847

(25) 95 x 63 x 21 = 125,685

## POST TEST

## TEN-KEY ADDING-LISTING MACHINE

(1) 4.19
7.42
4.70
4.25
7.89
9.33
7.45
2.50

(2) 45.30
78.62
19.95
36.23
29.61
69.45
42.33
27.64

(3) 250.85
503.10
70.20
336.98
79.40
205.19
89.45
176.34

(4) 2,435.62
3,701.22
6,324.19
9,301.40
741.97
2.01
75.40
1,204.25

(5) 19.65
540.23
795.20
20.40
321.16
9,842.55
421.95
25.00

(6) 45.90
24.65
100.54
17.95
4.50
496.75
4,201.13
1.19

(7) 205 x 14 =

(8) 421 x 76 =

(9) 4,019 x 112 =

(10) 4,325 x 57 =

(11) 2,902 x 523 =

(12) 4.36 x 2.5 =

(13) 13.86 x 975 =

(14) 99 ÷ 6 =
(reciprocal of 6 is .16667)

(15) 324 ÷ 40 =
(reciprocal of 40 is .025)

(16) 27.42 ÷ 33 =
(reciprocal of 33 is .0303)

(17) 4,362 ÷ 66 1/2 =
(reciprocal of 665 is .0015)

(18) 42,937 ÷ 999 =
(reciprocal of 999 is .001)

(19) 874 ÷ 1/5 =
(reciprocal of 20 is .05)

(20) 104.02
-16.74

(21) 419,959.40
-37,102.76

(22) 16,321
-18,000

(23) 13 x 136
99 x 114
94 x 37
75 x 21

(24) (320 x 11) - (24 x 75) =

(25) 89 x 72 x 21 =

## POST TEST

KEY

## TEN-KEY ADDING-LISTING MACHINE

C-3

(1)
4.19
7.42
4.70
4.25
7.89
9.33
7.45
2.50
47.73

(2)
45.30
78.62
19.95
36.23
29.61
69.45
42.33
27.64
349.13

(3)
250.85
503.10
70.20
336.98
79.40
205.19
89.45
176.34
1,711.51

(4)
2,435.62
3,701.22
6,324.19
9,301.40
741.97
2.01
75.40
1,204.25
23,786.06

(5)
19.65
540.23
795.20
20.40
321.16
9,842.55
421.95
25.00
11,986.14

(6)
45.90
24.65
100.54
17.95
4.50
496.75
4,201.13
1.19
4,892.61

(7) 205 x 14 = 2,870

(8) 421 x 76 = 31,996

(9) 4,019 x 112 = 450,128

(10) 4,325 x 57 = 246,525

(11) 2,902 x 523 = 1,517,746

(12) 4.36 x 2.5 = 10.9

(13) 13.86 x 975 = 13,513.5

(14) 99 ÷ 6 = 16.50033
(reciprocal of 6 is .16667)

(15) 324 ÷ 40 = 8.1
(reciprocal of 40 is .025)

(16) 27.42 ÷ 33 = .8308
(reciprocal of 33 is .0303)

(17) 4,362 ÷ 66 1/2 = 65.43
(reciprocal of 665 is .0015)

(18) 42,937 ÷ 999 = 42.937
(reciprocal of 999 is .001)

(19) 874 ÷ 1/5 = 4,370
(reciprocal of 20 is .05)

(20)
104.02
-16.74
87.28

(21)
419,959.40
-37,102.76
382,856.64

(22)
16,321
-18,000
1,679 Cr.

(23) 13 x 136
99 x 114
94 x 37
75 x 21

18,107

(24) (320 x 11) - (24 x 75) = 1,720

(25) 89 x 72 x 21 = 134,568

# DIRECTIONS

## POST TEST FOR FULL KEYBOARD ADDING-LISTING MACHINE

You will be allowed 20 minutes. Work quickly. Work each problem one time. If you finish in less than 20 minutes, use the remaining time to check your answers.

1. Round all reciprocals off to five decimal places.
2. Round all decimal equivalents off to five decimal places.
3. Round all products off to five decimal places.
4. Punctuate all answers with commas and decimal points.
5. Indicate special notations in answers, such as Cr., %, etc.
6. Number each problem with the non-add key.
7. Turn in paper tape.
8. Complete evaluation sheet.
9. Turn in time sheet.

# POST TEST

## FULL KEYBOARD ADDING-LISTING MACHINE D-1

(1)
1.25
6.22
9.17
7.21
4.07
1.88
7.04
7.19

(2)
488
626
324
800
727
325
815
704

(3)
42.25
17.21
102.77
88.99
17.24
326.19
1,421.00
4.97

(4)
4,761.44
8,418.16
121.30
190.16
17.23
476.20
24.70
9.64

(5)
95.32
17.88
4.21
302.16
4,317.82
19.21
418.19
2.21

(6)
7.27
8.19
40.22
4.26
317.19
8.94
1,602.21
24.70

(7) 306 x 15 =

(8) 195 x 83 =

(9) 3,028 x 223 =

(10) 5,126 x 64 =

(11) 1,803 x 512 =

(12) 4.16 x 1.9 =

(13) 16.21 x 754 =

(14) 64 ÷ 4 =
(reciprocal of 4 is .25)

(15) 421 ÷ 40 =
(reciprocal of 40 is .025)

(16) 33.27 ÷ 33 =
(reciprocal of 33 is .0303)

(17) 3,214 ÷ 66 1/2 =
(reciprocal of 665 is .0015)

(18) 32,364 ÷ 999 =
(reciprocal of 999 is .001)

(19) 357 ÷ 1/5 =
(reciprocal of 20 is .05)

(20)
316.42
-87.76

(21)
819.80
-519.89

(22)
704.32
-800.00

(23) 4,146.80
-2,997.67

(24) 15.95
-12.76

(25) 14,624
-17,000

## DIRECTIONS FOR POST TEST

## ELECTRONIC CALCULATOR

You will be given 40 minutes. Work quickly. If you finish in less than 40 minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Round percentages off to two decimal places.
3. Round all products off to five decimal places.
4. Round all quotients off or up to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers; for example - Cr., %.

# POST TEST

## ELECTRONIC CALCULATOR

(1)
70
69
31
16
22

(2)
.4168
2.21
.103
33.1096
34.60

(3)
57,920
-48,621

(4)
18,920
-21,400

(5)
18.42
- 1.065
2.2107
-14.18
3.2

(6) 18 x 45 =

(7) 7.24 x 18.9 =

(8) 17 x 15 x 3 x 8 =

(9) 16.4 x 45.3 x 19.2 =

(10) 48.7 x 6.19 x 14.3 =

(11) (92 x 17) - (14 x 22) =

(12) (24 x 32) - (17 x 102) =

(13) (49 x 15) - (44 x 29) =

(14) 200 doz. at $1.19 =

(15) 48 doz. at $1.19 =

(16) 18 doz. at $1.19 =

(17) 43 doz. at $1.19 =

(18) 434 doz. at $1.19 =

(19) 135 doz. at $1.19 =

(20) 57 doz. at $1.19 =

[redacted]

(21) 16 ÷ 4 =

(22) 97.6 ÷ 14 =

(23) 401 ÷ 1.02 =

(24) 13,709 ÷ 43 =

(25) 749 ÷ 19 =

(26) 196 ÷ 413 =

(27) 409 ÷ 2.36 =

(28) 1,057 ÷ 2.725 =

(29) 14,701 ÷ 18.25 =

(30) 73,201 ÷ 65 =

## INTEREST CALCULATION

| | Amount of Principle | Interest Rate | Period of Time | Amount to be Repaid |
|---|---|---|---|---|
| 31. | $572 | 3 1/2% | 52 days | |
| 32. | $402 | 6% | 60 days | |
| 33. | $2,000 | 6 1/2% | 66 days | |
| 34. | $4,715 | 6% | 90 days | |
| 35. | $15,000 | 4% | 75 days | |
| 36. | $8,975 | 5 1/2% | 20 days | |
| 37. | $3,000 | 5% | 190 days | |
| 38. | $8,000 | 4 3/4% | 60 days | |
| 39. | $10,624 | 7% | 50 days | |
| 40. | $13,905 | 8% | 100 days | |

|  | QUANTITY | UNIT PRICE | EXTENSION |
|---|---|---|---|
| 41. | 16 | $4.18 |  |
| 42. | 75 | 3.23 |  |
| 43. | 14 | 1.90 |  |
| 44. | 45 | 3.22 |  |
| 45. | 17 | 3.09 |  |
| 46. | 29 | 4.07 |  |
| 47. | 4 | .18 |  |
| 48. | 18 | 7.06 |  |
| 49. | 12 | 4.66 |  |
| 50. | 31 | .70 |  |
| 51. |  | TOTAL |  |
| 52. |  | 3% Sales Tax | ____________________ |
| 53. |  | Amount Due | ____________________ |

## DISCOUNTS AND NET AMOUNTS

| | Amount | Discount Rate | Amount of Discount | Net Amount |
|---|---|---|---|---|
| 54/55 | $295.00 | 4 1/2% | | |
| 56/57 | 320.00 | 5% | | |
| 58/59 | 425.00 | 9% | | |
| 60/61 | 1460.00 | 5 1/2% | | |
| 62/63 | 95.00 | 6 3/4% | | |
| 64/65 | 198.50 | 6% | | |
| 66/67 | 619.22 | 11% | | |
| 68/69 | 79.55 | 3% | | |
| 70/71 | 245.29 | 4 3/4% | | |
| 72/73 | 550.00 | 13% | | |

## CALCULATING THE PER CENT OF MARKUP BASED ON COST

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 74. | $15.00 | $21.00 | |
| 75. | 4.95 | 5.30 | |
| 76. | 165.19 | 200.00 | |
| 77. | 196.20 | 220.00 | |
| 78. | 210.00 | 250.00 | |

[redacted]

## CALCULATING THE PER CENT OF MARKUP BASED ON SELLING PRICE

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 79. | $29.00 | $36.00 | |
| 80. | 46.00 | 49.95 | |
| 81. | 122.00 | 128.95 | |
| 82. | 176.50 | 200.00 | |
| 83. | 217.32 | 315.05 | |

## CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

| | Cost | Markup | Selling Price |
|---|---|---|---|
| 84. | $25.00 | 30% | |
| 85. | 17.95 | 19% | |
| 86. | 232.75 | 24% | |
| 87. | 227.82 | 35% | |
| 88. | 39.95 | 15% | |

| | CASH PRICE | INSTALLMENT PRICE | CARRYING CHARGE | DOWN PAYMENT | MONTHS | MONTHLY PAYMENT |
|---|---|---|---|---|---|---|
| 89/90 | $500.00 | $560.00 | $ | $50.00 | 10 | $ |
| 91/92 | 990.00 | 1200.00 | | 20.00 | 9 | |
| 93/94 | 1200.00 | 1430.00 | | 150.00 | 8 | |
| 95/96 | 790.00 | 900.00 | | 75.00 | 10 | |
| 97/98 | 500.00 | 700.00 | | 200.00 | 6 | |
| 99/100 | 1000.00 | 1510.00 | | 350.00 | 12 | |

# POST TEST

KEY FULL KEYBOARD ADDING-LISTING MACHINE D-1

(1)
1.25
6.22
9.17
7.21
4.07
1.88
7.04
7.19
44.03

(2)
488
626
324
800
727
325
815
704
4,809

(3)
42.25
17.21
102.77
88.99
17.24
326.19
1,421.00
4.97
2,020.62

(4)
4,761.44
8,418.16
121.30
190.16
17.23
476.20
24.70
9.64
14,018.83

(5)
95.32
17.88
4.21
302.16
4,317.82
19.21
418.19
2.21
5,177.00

(6)
7.27
8.19
40.22
4.26
317.19
8.94
1,602.21
24.70
2,012.98

(7) 306 x 15 = 4,590

(8) 195 x 83 = 16,185

(9) 3,028 x 223 = 675,244

(10) 5,126 x 64 = 328,064

(11) 1,803 x 512 = 923,136

(12) 4.16 x 1.9 = 7.904

(13) 16.21 x 754 = 12,222.34

(14) 64 ÷ 4 = 16
(reciprocal of 4 is .25)

(15) 421 ÷ 40 = 10.525
(reciprocal of 40 is .025)

(16) 33.27 ÷ 33 = 1.00808
(reciprocal of 33 is .0303)

(17) 3,214 ÷ 66 1/2 = 48.21
(reciprocal of 665 is .0015)

(18) 32,364 ÷ 999 = 32.364
(reciprocal of 999 is .001)

(19) 357 ÷ 1/5 = 1,785
(reciprocal of 20 is .05)

(20)
316.42
-87.76
228.66

(21)
819.80
-519.89
299.91

(22)
704.32
-800.00
95.68 Cr.

(23) 4,146.80
-2,997.67

1,149.13

(24) 15.95
-12.76

3.19

(25) 14,624
-17,000

2,376 Cr.

[redacted]

## POST TEST

## FULL KEYBOARD ADDING-LISTING MACHINES D-2

(1)
1.25
6.22
9.18
6.42
4.07
2.88
7.04
7.19

(2)
477
626
324
600
727
325
819
704

(3)
42.25
17.21
102.77
88.99
17.24
326.19
1,421.00
4.97

(4)
4,761.44
8,418.16
112.40
170.15
17.23
476.20
24.70
9.64

(5)
95.32
16.77
4.21
302.16
4,317.82
19.21
418.19
1.12

(6)
6.26
8.19
40.22
4.26
317.19
4.98
1,602.21
24.70

(7) 405 x 14 =

(8) 186 x 74 =

(9) 2,037 x 322 =

(10) 4,315 x 64 =

(11) 1,902 x 513 =

(12) 3.27 x 1.6 =

(13) 15.32 x 742 =

(14) 53 ÷ 4 =
(reciprocal of 4 is .25)

(15) 342 ÷ 40 =
(reciprocal of 40 is .025)

(16) 27.95 ÷ 33 =
(reciprocal of 33 is .0303)

(17) 3,215 ÷ 66 1/2 =
(reciprocal of 665 is .0015)

(18) 23,634 ÷ 999 =
(reciprocal of 999 is .001)

(19) 623 ÷ 1/5 =
(reciprocal of 20 is .05)

(20)
316.42
- 79.76

(21) 819.80
-529.88

(22) 704.32
-800.00

(23) 4,146.80
-2,899.67

(24) 15.95
- 9.63

(25) 14,624
-17,000

## POST TEST

KEY

## FULL KEYBOARD ADDING-LISTING MACHINES

D-2

| (1) | (2) | (3) |
|---|---|---|
| 1.25 | 477 | 42.25 |
| 6.22 | 626 | 17.21 |
| 9.18 | 324 | 102.77 |
| 6.42 | 600 | 88.99 |
| 4.07 | 727 | 17.24 |
| 2.88 | 325 | 326.19 |
| 7.04 | 819 | 1,421.00 |
| 7.19 | 704 | 4.97 |
| 44.25 | 4,602 | 2,020.62 |

| (4) | (5) | (6) |
|---|---|---|
| 4,761.44 | 95.32 | 6.26 |
| 8,418.16 | 16.77 | 8.19 |
| 112.40 | 4.21 | 40.22 |
| 170.15 | 302.16 | 4.26 |
| 17.23 | 4,317.82 | 317.19 |
| 476.20 | 19.21 | 4.98 |
| 24.70 | 418.19 | 1,602.21 |
| 9.64 | 1.12 | 24.70 |
| 13,989.92 | 5,174.80 | 2,008.01 |

(7) 405 x 14 = 5,670

(8) 186 x 74 = 13,764

(9) 2,037 x 322 = 655,914

(10) 4,315 x 64 = 276,160

(11) 1,902 x 513 = 975,726

(12) 3.27 x 1.6 = 5.232

(13) 15.32 x 742 = 11,367.44

(14) 53 ÷ 4 = 13.25
(reciprocal of 4 is .25)

(15) 342 ÷ 40 = 8.55
(reciprocal of 40 is .025)

(16) 27.95 ÷ 33 = .84689
(reciprocal of 33 is .0303)

(17) 3,215 ÷ 66 1/2 = 48.225
(reciprocal of 665 is .0015)

(18) 23,634 ÷ 999 = 23.634
(reciprocal of 999 is .001)

(19) 623 ÷ 1/5 = 3,115
(reciprocal of 20 is .05)

(20) 316.42
− 79.76
236.66

[redacted]

(21) 819.80
-529.88

289.92

(22) 704.32
-800.00

95.68 Cr.

(23) 4,146.80
-2,899.67

1,247.13

(24) 15.95
- 9.63

6.32

(25) 14,624
-17,000

2,376 Cr.

## POST TEST

## FULL KEYBOARD ADDING-LISTING MACHINE

(1) 1.25
5.33
9.18
7.21
4.07
2.88
7.04
7.19

(2) 477
626
324
800
727
325
918
704

(3) 42.25
15.31
102.77
99.88
17.24
326.19
1,421.00
4.97

(4) 4,761.44
8,418.16
112.40
190.16
17.23
567.10
24.70
9.64

(5) 95.32
18.77
4.21
302.16
4,317.82
19.21
418.19
1.12

(6) 7.27
8.19
50.33
4.26
317.19
4.98
1,602.21
24.70

(7) 207 x 14 =

(8) 264 x 74 =

(9) 3,028 x 322 =

(10) 4,315 x 64 =

(11) 1,705 x 513 =

(12) 5.15 x 1.6 =

(13) 15.12 x 742 =

(14) 37 ÷ 4 =
(reciprocal of 4 is .25)

(15) 386 ÷ 40 =
(reciprocal of 40 is .025)

(16) 27.95 ÷ 33 =
(reciprocal of 33 is .0303)

(17) 3,281 ÷ 66 1/2 =
(reciprocal of 665 is .0015)

(18) 14,901 ÷ 999 =
(reciprocal of 999 is .001)

(19) 623 ÷ 1/5 =
(reciprocal of 20 is .05)

(20) 461.24
− 89.67

(21) 729.60
-629.99

(22) 704.32
-800.00

(23) 4,146.80
-2,779.67

(24) 15.95
-10.27

(25) 14,624
-19,000

## POST TEST

KEY

## FULL KEYBOARD ADDING-LISTING MACHINE

| (1) | (2) | (3) |
|---|---|---|
| 1.25 | 477 | 42.25 |
| 5.33 | 626 | 15.31 |
| 9.18 | 324 | 102.77 |
| 7.21 | 800 | 99.88 |
| 4.07 | 727 | 17.24 |
| 2.88 | 325 | 326.19 |
| 7.04 | 918 | 1,421.00 |
| 7.19 | 704 | 4.97 |
| 44.15 | 4,901 | 2,029.61 |

| (4) | (5) | (6) |
|---|---|---|
| 4,761.44 | 95.32 | 7.27 |
| 8,418.16 | 18.77 | 8.19 |
| 112.40 | 4.21 | 50.33 |
| 190.16 | 302.16 | 4.26 |
| 17.23 | 4,317.82 | 317.19 |
| 567.10 | 19.21 | 4.98 |
| 24.70 | 418.19 | 1,602.21 |
| 9.64 | 1.12 | 24.70 |
| 14,100.83 | 5,176.80 | 2,019.13 |

(7) 207 x 14 = 2,898

(8) 264 x 74 = 19,536

(9) 3,028 x 322 = 975,016

(10) 4,315 x 64 = 276,160

(11) 1,705 x 513 = 874,665

(12) 5.15 x 1.6 = 8.24

(13) 15.12 x 742 = 11,219.04

(14) 37 ÷ 4 = 9.25
(reciprocal of 4 is .25)

(15) 386 ÷ 40 = 9.65
(reciprocal of 40 is .025)

(16) 27.95 ÷ 33 = .8468
(reciprocal of 33 is .0303)

(17) 3,281 ÷ 66 1/2 = 49.215
(reciprocal of 665 is .0015)

(18) 14,901 ÷ 999 = 14.901
(reciprocal of 999 is .001)

(19) 623 ÷ 1/5 = 3,115
(reciprocal of 20 is .05)

(20) 461.24
- 89.67
371.57

(21) 729.60
-629.99

99.61

(22) 704.32
-800.00

95.68 Cr.

(23) 4,146.80
-2,779.67

1,367.13

(24) 15.95
-10.27

5.68

(25) 14,624
-19,000

4,376 Cr.

## POST TEST

## ELECTRONIC CALCULATOR

(1) 70
69
31
16
22
208

(2) .4168
2.21
.103
33.1096
34.60
70.4394

(3) 57,920
-48,621
9,299

(4) 18,920
-21,400
2,480 Cr.

(5) 18.42
- 1.065
2.2107
-14.18
3.2
8.5857

(6) 18 x 45 = 810

(7) 7.24 x 18.9 = 136.836

(8) 17 x 15 x 3 x 8 = 6,120

(9) 16.4 x 45.3 x 19.2 = 14,264.064

(10) 48.7 x 6.19 x 14.3 = 4,310.7779

(11) (92 x 17) - (14 x 22) = 1,256

(12) (24 x 32) - (17 x 102) = -966

(13) (49 x 15) - (44 x 29) = -541

(14) 200 doz. at $1.19 = $238

(15) 48 doz. at $1.19 = $57.12

(16) 18 doz. at $1.19 = $21.42

(17) 43 doz. at $1.19 = $51.17

(18) 434 doz. at $1.19 = $516.46

(19) 135 doz. at $1.19 = $160.65

(20) 57 doz. at $1.19 = $67.83

(21) 16 ÷ 4 = 4

(22) 97.6 ÷ 14 = 6.97143

(23) 401 ÷ 1.02 = 393.13725

(24) 13,709 ÷ 43 = 318.81395

(25) 749 ÷ 19 = 39.42105

(26) 196 ÷ 413 = .47458

(27) 409 ÷ 2.36 = 173.30508

(28) 1,057 ÷ 2.725 = 387.88991

(29) 14,701 ÷ 18.25 = 805.53425

(30) 73,201 ÷ 65 = 1,126.16923

## INTEREST CALCULATION

| Amount of Principle | Interest Rate | Period of Time | Amount to be Repaid |
|---|---|---|---|
| $572 | 3 1/2% | 52 days | $ 574.85 |
| $402 | 6% | 60 days | 405.96 |
| $2,000 | 6 1/2% | 66 days | 2,023.51 |
| $4,715 | 6% | 90 days | 4,784.76 |
| $15,000 | 4% | 75 days | 15,123.29 |
| $8,975 | 5 1/2% | 20 days | 9,002.05 |
| $3,000 | 5% | 190 days | 3,078.08 |
| $8,000 | 4 3/4% | 60 days | 8,062.47 |
| $10,624 | 7% | 50 days | 10,725.87 |
| $13,905 | 8% | 100 days | 14,209.77 |

[redacted]

|  | QUANTITY | UNIT PRICE | EXTENSION |
|---|---|---|---|
| 41. | 16 | $4.18 | 66.88 |
| 42. | 75 | 3.23 | 242.25 |
| 43. | 14 | 1.90 | 26.60 |
| 44. | 45 | 3.22 | 144.90 |
| 45. | 17 | 3.09 | 52.53 |
| 46. | 29 | 4.07 | 118.03 |
| 47. | 4 | .18 | .72 |
| 48. | 18 | 7.06 | 127.08 |
| 49. | 12 | 4.66 | 55.92 |
| 50. | 31 | .70 | 21.70 |
| 51. |  | TOTAL | 856.61 |
| 52. |  | 3% Sales Tax | 25.70 |
| 53. |  | Amount Due | 882.31 |

## DISCOUNTS AND NET AMOUNTS

| | Amount | Discount Rate | Amount of Discount | Net Amount |
|---|---|---|---|---|
| 54/55 | $295.00 | 4 1/2% | $ 13.28 | $281.72 |
| 56/57 | 320.00 | 5% | 16.00 | 304.00 |
| 58/59 | 425.00 | 9% | 38.25 | 386.75 |
| 60/61 | 1,460.00 | 5 1/2% | 80.30 | 1,379.70 |
| 62/63 | 95.00 | 6 3/4% | 6.41 | 88.59 |
| 64/65 | 198.50 | 6% | 11.91 | 186.59 |
| 66/67 | 619.22 | 11% | 68.11 | 551.11 |
| 68/69 | 79.55 | 3% | 2.39 | 77.16 |
| 70/71 | 245.29 | 4 3/4% | 11.65 | 233.64 |
| 72/73 | 550.00 | 13% | 71.50 | 478.50 |

## CALCULATING THE PER CENT OF MARKUP BASED ON COST

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 74. | 15.00 | 21.00 | 40% |
| 75. | 4.95 | 5.30 | 7.07% |
| 76. | 165.19 | 200.00 | 21.07% |
| 77. | 196.20 | 220.00 | 12.13% |
| 78. | 210.00 | 250.00 | 19.05% |

## CALCULATING THE PER CENT OF MARKUP BASED ON SELLING PRICE

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 79. | $29.00 | $36.00 | 19.44% |
| 80. | 46.00 | 49.95 | 7.91% |
| 81. | 122.00 | 128.95 | 5.39% |
| 82. | 176.50 | 200.00 | 11.75% |
| 83. | 217.32 | 315.05 | 31.02% |

## CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

| | Cost | Markup | Selling Price |
|---|---|---|---|
| 84. | $25.00 | 30% | $32.50 |
| 85. | 17.95 | 19% | 21.36 |
| 86. | 232.75 | 24% | 288.61 |
| 87. | 227.82 | 35% | 307.56 |
| 88. | 39.95 | 15% | 45.94 |

| | CASH PRICE | INSTALLMENT PRICE | CARRYING CHARGE | DOWN PAYMENT | MONTHS | MONTHLY PAYMENT |
|---|---|---|---|---|---|---|
| 89/90 | $500.00 | $560.00 | $ 60.00 | $ 50.00 | 10 | $51.00 |
| 91/92 | 990.00 | 1,200.00 | 210.00 | 20.00 | 9 | 131.11 |
| 93/94 | 1,200.00 | 1,430.00 | 230.00 | 150.00 | 8 | 160.00 |
| 95/96 | 790.00 | 900.00 | 110.00 | 75.00 | 10 | 82.50 |
| 97/98 | 500.00 | 700.00 | 200.00 | 200.00 | 6 | 83.33 |
| 99/100 | 1,000.00 | 1,510.00 | 510.00 | 350.00 | 12 | 96.67 |

# POST TEST

## ELECTRONIC CALCULATOR

(1)
70
69
31
16
24

(2)
.4168
2.27
.103
33.1096
34.60

(3)
57,926
-48,621

(4)
18,830
-21,400

(5)
18.43
- 1.065
2.2107
-14.18
3.2

(6) 19 x 45 =

(7) 7.22 x 18.9 =

(8) 16 x 15 x 3 x 8 =

(9) 16.5 x 45.3 x 19.2 =

(10) 48.5 x 6.19 x 14.3 =

(11) (92 x 15) - (14 x 22) =

(12) (20 x 32) - (17 x 102) =

(13) (49 x 12) - (44 x 29) =

(14) 200 doz. at $1.45 =

(15) 48 doz. at $1.45 =

(16) 18 doz. at $1.45 =

(17) 43 doz. at $1.45 =

(18) 434 doz. at $1.45 =

(19) 135 doz. at $1.45 =

(20) 57 doz. at $1.45 =

(21) 18 ÷ 4 =

(22) 97.6 ÷ 12 =

(23) 402 ÷ 1.02 =

(24) 13,709 ÷ 41 =

(25) 749 ÷ 16 =

(26) 195 ÷ 413 =

(27) 405 ÷ 2.36 =

(28) 1,047 ÷ 2.725 =

(29) 14,501 ÷ 18.25 =

(30) 70,201 ÷ 65 =

## INTEREST CALCULATION

| | Amount of Principle | Interest Rate | Period of Time | Amount to be Repaid |
|---|---|---|---|---|
| 31. | $580.00 | 3 1/2% | 52 days | |
| 32. | 400.00 | 6% | 60 days | |
| 33. | 1,500.00 | 6 1/2% | 66 days | |
| 34. | 4,500.00 | 6% | 90 days | |
| 35. | 16,000.00 | 4% | 75 days | |
| 36. | 7,995.00 | 5 1/2% | 20 days | |
| 37. | 3,500.00 | 5% | 190 days | |
| 38. | 7,800.00 | 4 3/4% | 60 days | |
| 39. | 10,500.00 | 7% | 50 days | |
| 40. | 12,775.00 | 8% | 100 days | |

|  | QUANTITY | UNIT PRICE | EXTENSION |
|---|---|---|---|
| 41. | 18 | $4.18 |  |
| 42. | 70 | 3.23 |  |
| 43. | 12 | 1.90 |  |
| 44. | 40 | 3.22 |  |
| 45. | 15 | 3.09 |  |
| 46. | 25 | 4.07 |  |
| 47. | 5 | .18 |  |
| 48. | 15 | 7.06 |  |
| 49. | 10 | 4.66 |  |
| 50. | 30 | .70 |  |

51. TOTAL____________________

52. 3% Sales Tax______________

53. Amount Due________________

## DISCOUNTS AND NET AMOUNTS

| | Amount | Discount Rate | Amount of Discount | Net Amount |
|---|---|---|---|---|
| 54/55 | $300.00 | 4 1/2% | | |
| 56/57 | 300.00 | 5% | | |
| 58/59 | 400.00 | 9% | | |
| 60/61 | 1,450.00 | 5 1/2% | | |
| 62/63 | 93.00 | 6 3/4% | | |
| 64/65 | 195.50 | 6% | | |
| 66/67 | 620.00 | 11% | | |
| 68/69 | 89.65 | 3% | | |
| 70/71 | 240.29 | 4 3/4% | | |
| 72/73 | 540.00 | 13% | | |

## CALCULATING THE PER CENT OF MARKUP BASED ON COST

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 74. | $13.00 | $21.00 | |
| 75. | 3.95 | 5.30 | |
| 76. | 160.19 | 200.00 | |
| 77. | 195.10 | 220.00 | |
| 78. | 280.00 | 310.00 | |

## CALCULATING THE PER CENT OF MARKUP BASED ON SELLING PRICE

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 79. | $28.00 | $36.00 | |
| 80. | 45.00 | 49.95 | |
| 81. | 121.00 | 128.95 | |
| 82. | 175.00 | 200.00 | |
| 83. | 215.30 | 315.05 | |

## CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

| | Cost | Markup | Selling Price |
|---|---|---|---|
| 84. | $30.00 | 30% | |
| 85. | 18.00 | 19% | |
| 86. | 230.75 | 24% | |
| 87. | 225.85 | 35% | |
| 88. | 37.85 | 15% | |

| | Cash Price | Installment Price | Carrying Charge | Down Payment | Months | Monthly Payment |
|---|---|---|---|---|---|---|
| 89/90 | $450.00 | $560.00 | $ | $50.00 | 10 | $ |
| 91/92 | 1,000.00 | 1,200.00 | | 20.00 | 9 | |
| 93/94 | 1,205.00 | 1,430.00 | | 150.00 | 8 | |
| 95/96 | 800.00 | 900.00 | | 75.00 | 10 | |
| 97/98 | 450.00 | 700.00 | | 200.00 | 6 | |
| 99/100 | 1,200.00 | 1,510.00 | | 350.00 | 12 | |

POST TEST E-2

KEY ELECTRONIC CALCULATOR

(1) 70
69
31
16
24
210

(2) .4168
2.27
.103
33.1096
34.60
70.4994

(3) 57,926
-48,621
9,305

(4) 18,830
-21,400
2,570 Cr.

(5) 18.43
- 1.065
2.2107
-14.18
3.2
8.5957

(6) 19 x 45 = 855

(7) 7.22 x 18.9 = 136.458

(8) 16 x 15 x 3 x 8 = 5,760

(9) 16.5 x 45.3 x 19.2 = 14,351.04

(10) 48.5 x 6.19 x 14.3 = 4,293.0745

(11) (92 x 15) - (14 x 22) = 1,072

(12) (20 x 32) - (17 x 102) = 1,094 Cr.

(13) (49 x 12) - (44 x 29) = 688 Cr.

(14) 200 doz. at $1.45 = $290

(15) 48 doz. at $1.45 = $69.60

(16) 18 doz. at $1.45 = $26.10

(17) 43 doz. at $1.45 = $62.35

(18) 434 doz. at $1.45 = $629.30

(19) 135 doz. at $1.45 = $195.75

(20) 57 doz. at $1.45 = $82.65

(21) 18 ÷ 4 = 4.5

(22) 97.6 ÷ 12 = 8.13333

(23) 402 ÷ 1.02 = 394.11765

(24) 13,709 ÷ 41 = 334.36585

(25) 749 ÷ 16 = 46.8125

(26) 195 ÷ 413 = .47215

(27) 405 ÷ 2.36 = 171.61017

(28) 1,047 ÷ 2.725 = 384.22018

(29) 14,501 ÷ 18.25 = 794.57534

(30) 70,201 ÷ 65 = 1,080.01538

## INTEREST CALCULATION

| | Amount of Principle | Interest Rate | Period of Time | Amount to be Repaid |
|---|---|---|---|---|
| (31) | $ 580.00 | 3 1/2% | 52 days | $ 582.89 |
| (32) | 400.00 | 6% | 60 days | 403.95 |
| (33) | 1,500.00 | 6 1/2% | 66 days | 1,517.63 |
| (34) | 4,500.00 | 6% | 90 days | 4,566.58 |
| (35) | 16,000.00 | 4% | 75 days | 16,131.51 |
| (36) | 7,995.00 | 5 1/2% | 20 days | 8,019.09 |
| (37) | 3,500.00 | 5% | 190 days | 3,591.10 |
| (38) | 7,800.00 | 4 3/4% | 60 days | 7,860.90 |
| (39) | 10,500.00 | 7% | 50 days | 10,600.68 |
| (40) | 12,775.00 | 8% | 100 days | 13,055.00 |

[redacted]

[redacted]

|  | Quantity | Unit Price | Extension |
|---|---|---|---|
| 41. | 18 | $4.18 | $ 75.24 |
| 42. | 70 | 3.23 | 226.10 |
| 43. | 12 | 1.90 | 22.80 |
| 44. | 40 | 3.22 | 128.80 |
| 45. | 15 | 3.09 | 46.35 |
| 46. | 25 | 4.07 | 101.75 |
| 47. | 5 | .18 | .90 |
| 48. | 15 | 7.06 | 105.90 |
| 49. | 10 | 4.66 | 46.60 |
| 50. | 30 | .70 | 21.00 |
| 51. |  | TOTAL | 775.44 |
| 52. |  | 3% Sales Tax | 23.26 |
| 53. |  | Amount Due | 798.70 |

## DISCOUNTS AND NET AMOUNTS

| | Amount | Discount Rate | Amount of Discount | Net Amount |
|---|---|---|---|---|
| 54/55 | $300.00 | 4 1/2% | $ 13.50 | $286.50 |
| 56/57 | 300.00 | 5% | 15.00 | 285.00 |
| 58/59 | 400.00 | 9% | 36.00 | 364.00 |
| 60/61 | 1,450.00 | 5 1/2% | 79.75 | 1,370.25 |
| 62/63 | 93.00 | 6 3/4% | 6.28 | 86.72 |
| 64/65 | 195.50 | 6% | 11.73 | 183.77 |
| 66/67 | 620.00 | 11% | 68.20 | 551.80 |
| 68/69 | 89.65 | 3% | 2.69 | 86.96 |
| 70/71 | 240.29 | 4 3/4% | 11.41 | 228.88 |
| 72/73 | 540.00 | 13% | 70.20 | 469.80 |

## CALCULATING THE PER CENT OF MARKUP BASED ON COST

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 74. | $13.00 | $21.00 | 61.54% |
| 75. | 3.95 | 5.30 | 34.18% |
| 76. | 160.19 | 200.00 | 24.85% |
| 77. | 195.10 | 220.00 | 12.76% |
| 78. | 280.00 | 310.00 | 10.71% |

## CALCULATING THE PER CENT OF MARKUP BASED ON SELLING PRICE

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 79. | $28.00 | $36.00 | 22.22% |
| 80. | 45.00 | 49.95 | 9.91% |
| 81. | 121.00 | 128.95 | 6.17% |
| 82. | 175.00 | 200.00 | 12.5% |
| 83. | 215.30 | 315.05 | 31.66% |

## CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

| | Cost | Markup | Selling Price |
|---|---|---|---|
| 84. | $30.00 | 30% | $39.00 |
| 85. | 18.00 | 19% | 21.42 |
| 86. | 230.75 | 24% | 286.13 |
| 87. | 225.85 | 35% | 304.90 |
| 88. | 37.85 | 15% | 43.53 |

| | Cash Price | Installment Price | Carrying Charge | Down Payment | Months | Monthly Payment |
|---|---|---|---|---|---|---|
| 89/90 | $450.00 | $560.00 | $110.00 | $50.00 | 10 | $51.00 |
| 91/92 | 1,000.00 | 1,200.00 | 200.00 | 20.00 | 9 | 131.11 |
| 93/94 | 1,205.00 | 1,430.00 | 225.00 | 150.00 | 8 | 160.00 |
| 95/96 | 800.00 | 900.00 | 100.00 | 75.00 | 10 | 82.50 |
| 97/98 | 450.00 | 700.00 | 250.00 | 200.00 | 6 | 83.33 |
| 99/100 | 1,200.00 | 1,510.00 | 310.00 | 350.00 | 12 | 96.67 |

POST TEST ELECTRONIC CALCULATOR

E-3

1. 60
69
31
16
22

2. .4158
2.21
.103
33.1096
34.60

3. 58,920
-48,621

4. 17,520
-21,400

5. 18.43
- 1.065
2.2107
-14.18
3.2

6. 19 x 45 =

7. 7.23 x 18.9 =

8. 15 x 15 x 3 x 8 =

9. 15.3 x 45.3 x 19.2 =

10. 49.5 x 6.19 x 14.3 =

11. (67 x 17) - (14 x 22) =

12. (20 x 32) - (17 x 102) =

13. (45 x 15) - (44 x 29) =

14. 200 doz. at $1.30 =

15. 48 doz. at $1.30 =

16. 18 doz. at $1.30 =

17. 43 doz. at $1.30 =

18. 434 doz. at $1.30 =

19. 135 doz. at $1.30 =

20. 57 doz. at $1.30 =

[redacted]

21. 20 ÷ 4 =

22. 98.9 ÷ 14 =

23. 307 ÷ 1.02 =

24. 12,809 ÷ 43 =

25. 675 ÷ 19 =

26. 176 ÷ 413 =

27. 405 ÷ 2.36 =

28. 1000 ÷ 2.725 =

29. 14,702 ÷ 18.25 =

30. 70,201 ÷ 65 =

## INTEREST CALCULATION

| | Amount of Principle | Interest Rate | Period of Time | Amount to be Repaid |
|---|---|---|---|---|
| 31. | $550 | 3 1/2% | 52 days | |
| 32. | 400 | 6% | 60 days | |
| 33. | 2,200 | 6 1/2% | 66 days | |
| 34. | 4,500 | 6% | 90 days | |
| 35. | 16,000 | 4% | 75 days | |
| 36. | 7,975 | 5 1/2% | 20 days | |
| 37. | 2,500 | 5% | 190 days | |
| 38. | 7,000 | 4 3/4% | 60 days | |
| 39. | 11,624 | 7% | 50 days | |
| 40. | 14,905 | 8% | 100 days | |

|  | Quantity | Unit Price | Extension |
|---|---|---|---|
| 41. | 15 | $4.18 |  |
| 42. | 70 | 3.23 |  |
| 43. | 12 | 1.90 |  |
| 44. | 50 | 3.22 |  |
| 45. | 16 | 3.09 |  |
| 46. | 30 | 4.07 |  |
| 47. | 6 | .18 |  |
| 48. | 20 | 7.06 |  |
| 49. | 15 | 4.66 |  |
| 50. | 30 | .70 |  |

51. TOTAL______________________________

52. 3% Sales Tax______________________

53. Amount Due________________________

## DISCOUNTS AND NET AMOUNTS

| | Amount | Discount Rate | Amount of Discount | Net Amount |
|---|---|---|---|---|
| 54/55 | $250.00 | 4 1/2% | $ | $ |
| 56/57 | 310.00 | 5% | | |
| 58/59 | 415.00 | 9% | | |
| 60/61 | 1,260.00 | 5 1/2% | | |
| 62/63 | 105.00 | 6 3/4% | | |
| 64/65 | 200.50 | 6% | | |
| 66/67 | 600.22 | 11% | | |
| 68/69 | 75.55 | 3% | | |
| 70/71 | 245.20 | 4 3/4% | | |
| 72/73 | 500.00 | 13% | | |

## CALCULATING THE PER CENT OF MARKUP BASED ON COST

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 74. | $12.00 | $21.00 | |
| 75. | 4.94 | 5.30 | |
| 76. | 150.19 | 200.00 | |
| 77. | 195.20 | 220.00 | |
| 78. | 210.00 | 225.00 | |

[redacted]

1.
60
69
31
16
22
198

2.
.4158
2.21
.103
33.1096
34.60
70.4384

3.
58,920
-48,621
10,299

4.
17,520
-21,100
-3,880

5.
18.43
- 1.065
2.2107
-14.18
3.2
8.5957

6. 19 x 45 = 855

7. 7.23 x 18.9 = 136.647

8. 15 x 15 x 3 x 8 = 5400

9. 15.3 x 45.3 x 19.2 = 13,307.328

10. 49.5 x 6.19 x 14.3 = 4,381.5915

11. (67 x 17) - (14 x 22) = 831

12. (20 x 32) - (17 x 102) = 1,094 Cr.

13. (45 x 15) - (44 x 29) = 601 Cr.

14. 200 doz. at $1.30 = $260

15. 48 doz. at $1.30 = $62.40

16. 18 doz. at $1.30 = $23.40

17. 43 doz. at $1.30 = $55.90

18. 434 doz. at $1.30 = $564.20

19. 135 doz. at $1.30 = $175.50

20. 57 doz. at $1.30 = $74.10

21. 20 ÷ 4 = 5

22. 98.9 ÷ 14 = 7.06429

23. 307 ÷ 1.02 = 300.98039

24. 12,809 ÷ 43 = 297.88372

25. 675 ÷ 19 = 35.52632

26. 176 ÷ 413 = .42615

27. 405 ÷ 2.36 = 171.61017

28. 1000 ÷ 2.725 = 366.97248

29. 14,702 ÷ 18.25 = 805.58904

30. 70,201 ÷ 65 = 1,080.01538

## INTEREST CALCULATION

| | Amount of Principle | Interest Rate | Period of Time | Amount to be Repaid |
|---|---|---|---|---|
| 31. | $550 | 3 1/2% | 52 days | $ 552.74 |
| 32. | 400 | 6% | 60 days | 403.95 |
| 33. | 2,200 | 6 1/2% | 66 days | 2,225.86 |
| 34. | 4,500 | 6% | 90 days | 4,566.58 |
| 35. | 16,000 | 4% | 75 days | 16,131.51 |
| 36. | 7,975 | 5 1/2% | 20 days | 7,999.03 |
| 37. | 2,500 | 5% | 190 days | 2,565.07 |
| 38. | 7,000 | 4 3/4% | 60 days | 7,054.66 |
| 39. | 11,624 | 7% | 50 days | 11,735.46 |
| 40. | 14,905 | 8% | 100 days | 15,231.68 |

[redacted]

[redacted]

|  | Quantity | Unit Price | Extension |
|---|---|---|---|
| 41. | 15 | $4.18 | $ 62.70 |
| 42. | 70 | 3.23 | 226.10 |
| 43. | 12 | 1.90 | 22.80 |
| 44. | 50 | 3.22 | 161.00 |
| 45. | 16 | 3.09 | 49.44 |
| 46. | 30 | 4.07 | 122.10 |
| 47. | 6 | .18 | 1.08 |
| 48. | 20 | 7.06 | 141.20 |
| 49. | 15 | 4.66 | 69.90 |
| 50. | 30 | .70 | 21.00 |
| 51. |  | TOTAL | 877.32 |
| 52. |  | 3% Sales Tax | 26.32 |
| 53. |  | Amount Due | 903.64 |

## DISCOUNTS AND NET AMOUNTS

| | Amount | Discount Rate | Amount of Discount | Net Amount |
|---|---|---|---|---|
| 54/55 | $250.00 | 4 1/2% | $ 11.25 | $ 238.75 |
| 56/57 | 310.00 | 5% | 15.50 | 294.50 |
| 58/59 | 415.00 | 9% | 37.35 | 377.65 |
| 60/61 | 1,260.00 | 5 1/2% | 69.30 | 1,190.70 |
| 62/63 | 105.00 | 6 3/4% | 7.09 | 97.91 |
| 64/65 | 200.50 | 6% | 12.03 | 188.47 |
| 66/67 | 600.22 | 11% | 66.02 | 534.20 |
| 68/69 | 75.55 | 3% | 2.27 | 73.28 |
| 70/71 | 245.20 | 4 3/4% | 11.65 | 233.55 |
| 72/73 | 500.00 | 13% | 65.00 | 435.00 |

## CALCULATING THE PER CENT OF MARKUP BASED ON COST

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 74. | $ 12.00 | $ 21.00 | 75% |
| 75. | 4.94 | 5.30 | 7.29% |
| 76. | 150.19 | 200.00 | 33.16% |
| 77. | 195.20 | 220.00 | 12.70% |
| 78. | 210.00 | 225.00 | 7.14% |

[redacted]

## CALCULATING THE PER CENT OF MARKUP BASED ON SELLING PRICE

| | Cost | Selling Price | Percent of Markup |
|---|---|---|---|
| 79. | $ 26.00 | $ 36.00 | 27.78% |
| 80. | 48.00 | 49.95 | 3.9% |
| 81. | 123.00 | 128.95 | 4.61% |
| 82. | 175.50 | 200.00 | 12.25% |
| 83. | 215.32 | 315.05 | 31.66% |

## CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

| | Cost | Markup | Selling Price |
|---|---|---|---|
| 84. | $ 20.00 | 30% | $ 26.00 |
| 85. | 18.75 | 19% | 22.31 |
| 86. | 235.75 | 24% | 292.33 |
| 87. | 230.82 | 35% | 311.61 |
| 88. | 35.85 | 15% | 41.23 |

| | Cash Price | Installment Price | Carrying Charge | Down Payment | Months | Monthly Payment |
|---|---|---|---|---|---|---|
| 89/90 | $510.00 | $560.00 | $ 50.00 | $ 50.00 | 10 | $ 51.00 |
| 91/92 | 980.00 | 1,200.00 | 220.00 | 20.00 | 9 | 131.11 |
| 93/94 | 1,215.00 | 1,430.00 | 215.00 | 150.00 | 8 | 160.00 |
| 95/96 | 750.00 | 900.00 | 150.00 | 75.00 | 10 | 82.50 |
| 97/98 | 475.00 | 700.00 | 225.00 | 200.00 | 6 | 83.33 |
| 99/100 | 1,100.00 | 1,510.00 | 410.00 | 350.00 | 12 | 96.67 |

## EVALUATION OF OFFICE MACHINES PACKAGES

Please check the package being evaluated:

1. Ten-key adding-listing machine

   Victor ☐ Burroughs ☐

2. Ten-key calculator

   Victor ☐ Olivetti-Underwood ☐

3. Full-key adding-listing machine

   Victor ☐

4. Rotary calculator

   Friden ☐ Automatic Monroe ☐

   Marchant ☐ Semi-Automatic Monroe ☐

5. Electronic calculator

   Olympia ☐

1. Were the directions for this package clear? Check one.

   Very Clear ☐ Clear ☐ Confusing ☐

   Very Confusing ☐

   If directions were not clear, at what point were they confusing? Be as specific as possible so this can be clarified.

2. Were exercises adequate? Check one.

   Very adequate ☐ Adequate ☐

   Inadequate ☐ Very Inadequate ☐

3. Was package as a whole any of the following:

Stimulating ☐ Boring ☐ Fun ☐

Dull ☐ Helpful ☐ Useless ☐

Too Difficult ☐ Too Easy ☐

4. Other comments:

[redacted]

You have become skilled on the rotary calculator, the ten-key calculator, the ten-key adding-listing machine, and the full-key adding-listing machine.

Please list the advantages and disadvantages of each machine on the next four pages.

Please give me your overall evaluation of this course.

## ELECTRONIC CALCULATOR

ADVANTAGES:

DISADVANTAGES:

ROTARY CALCULATOR

ADVANTAGES:

DISADVANTAGES:

## TEN-KEY CALCULATOR

ADVANTAGES:

DISADVANTAGES:

[redacted]

# TEN-KEY ADDING LISTING MACHINE

ADVANTAGES:

DISADVANTAGES:

## FULL-KEY ADDING LISTING MACHINE

ADVANTAGES:

DISADVANTAGES: